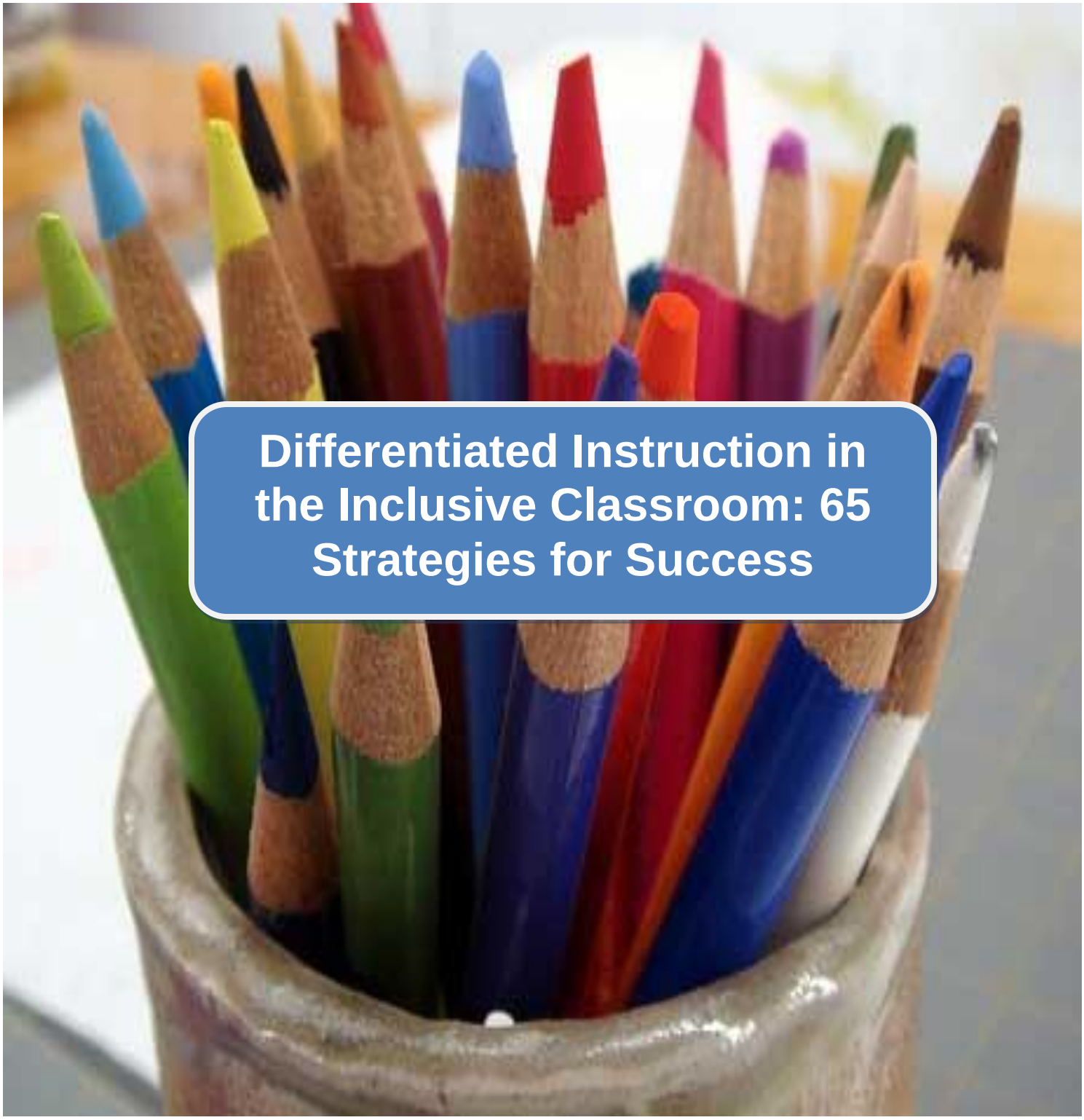

Differentiated Instruction in the Inclusive Classroom: 65 Strategies for Success

This booklet was created for teachers, district and department personnel in the Province of Newfoundland and Labrador.

Acknowledgements:

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Strategies

Strategy	Activating Prior Knowledge	Connecting	Consolidating	Extending	Page
Give Me 10 Questions for This Answers	X		X		**46**
Give One, Get One	X	X	X	X	**47**
Graffiti Fact	X		X		**48**
Graphic Organizers	X	X	X		**49**
Homework Checkers		X	X		**51**
Individual Response Boards		X			**53**
Inside-Outside Circle		X	X	X	**54**
Interactive Bookmark		X	X		**55**
Jeopardy	X	X	X	X	**57**
Jigsaw		X	X		**58**
K-W-L	X		X		**60**
List, Sort and Label	X				**61**
I Have, Who Has/Loops		X	X		**62**
Menu Boards		X			**64**
Mind Maps	X		X	X	**67**
Mini Offices		X	X		**69**
Numbered Heads		X	X	X	**70**
One Minute Commercial	X	X	X	X	**71**
P.L.A.N.	X				**72**
Piggybank Song	X	X	X		**73**
Placemat Activity	X	X			**74**
Portfolios			X	X	**75**
QAR (Question-Answer-Response)		X	X	X	**77**
Quick Draw	X				**78**
Quiz-Quiz Trade		X	X		**79**

Intent of Booklet

Inclusive Education involves the entire realm of education practice from school climate to classroom practice. One large piece includes the differentiation of instruction to address the learning needs, interests and preferred presentation modalities for all students. This booklet is intended to provide teachers with descriptions of a number of teaching strategies, classroom organizational techniques and assessment methods which may be useful in addressing the student diversity in our classrooms. These strategies are meant to offer options from which teachers may select in order to target particular students or class learning characteristics for a variety of purposes. While examples may be provided from a particular curriculum area, the strategy or approach may be easily transferred to any subject area and between grade levels.

What is Differentiated Instruction?

Differentiating instruction is doing what's fair and developmentally appropriate for students. It's a collection of best practices strategically employed to maximize students' learning at every turn, including giving them the tools to handle anything that is undifferentiated. It requires us to do different things for different students some, or a lot, of the time. It's whatever works to advance the student. It's highly effective teaching.

(Rick Wormeli, 2006)

Differentiated instruction (DI) is more than using a variety of interesting activities. It requires safe, caring and inclusive environments which provide optimal, research-based learning experiences. DI is using engaging, student-centred activities for a particular purpose. It is not giving the same assignment or resources to every student. DI would include choosing a specific approach in order to address a particular preference or need of a student or group of students. It could be designing a hands-on activity to make the topic or skill more meaningful for a kinesthetic learner. Teachers need to know their students very well so that varied learning options are provided to allow each student to process his or her learning in a way that is personally meaningful. While DI does not imply an individualized plan for each student, differentiating instruction does take the profile of each learner into consideration when designing lessons and activities.

Key Components of Differentiated Instruction:

1. Provide a classroom **climate** that is safe, encourages risk-taking and is inclusive, stimulating and challenging.
2. Know the **learning style** of each learner. (Is the student a visual, auditory or kinesthetic learner or a combination?) Use checklists, observation sheets, journals and/or recording logs to track each learner's style.
3. **Assess, Assess, Assess**. This is very important. Assess **before** you teach, **during** your teaching and **after** your teaching. Use written pre-tests, journaling surveys or graffiti facts to determine what they already know about a concept before you teach. Use rubrics, teacher-made tests, checklists or question techniques during teaching. Use posttests, portfolios, reflections and /or conversations after you teach.
4. **Adjust the assignments** you give to your students based on their learning styles and needs. One assignment does not fit all. Look at the various ways a student or a group of students can demonstrate learning. Give choices in the type of assignments they can complete and method of presentation.
5. Consider your **instructional strategies**. Are you using effective methods to help your students remember and recall concepts? Are the activities you provide meaningful and related to the concepts taught? Are you providing graphic organizers to help map out their learning? Are your groupings flexible, purposeful and effective?
6. **Curriculum Approaches**: You can vary the way you deliver curriculum through learning centres, projects, problem based learning and the inquiry model approach.

(Adapted from: *Differentiated Instructional Strategies: One Size Doesn't Fit All*. Gregory/Chapman, 2003)

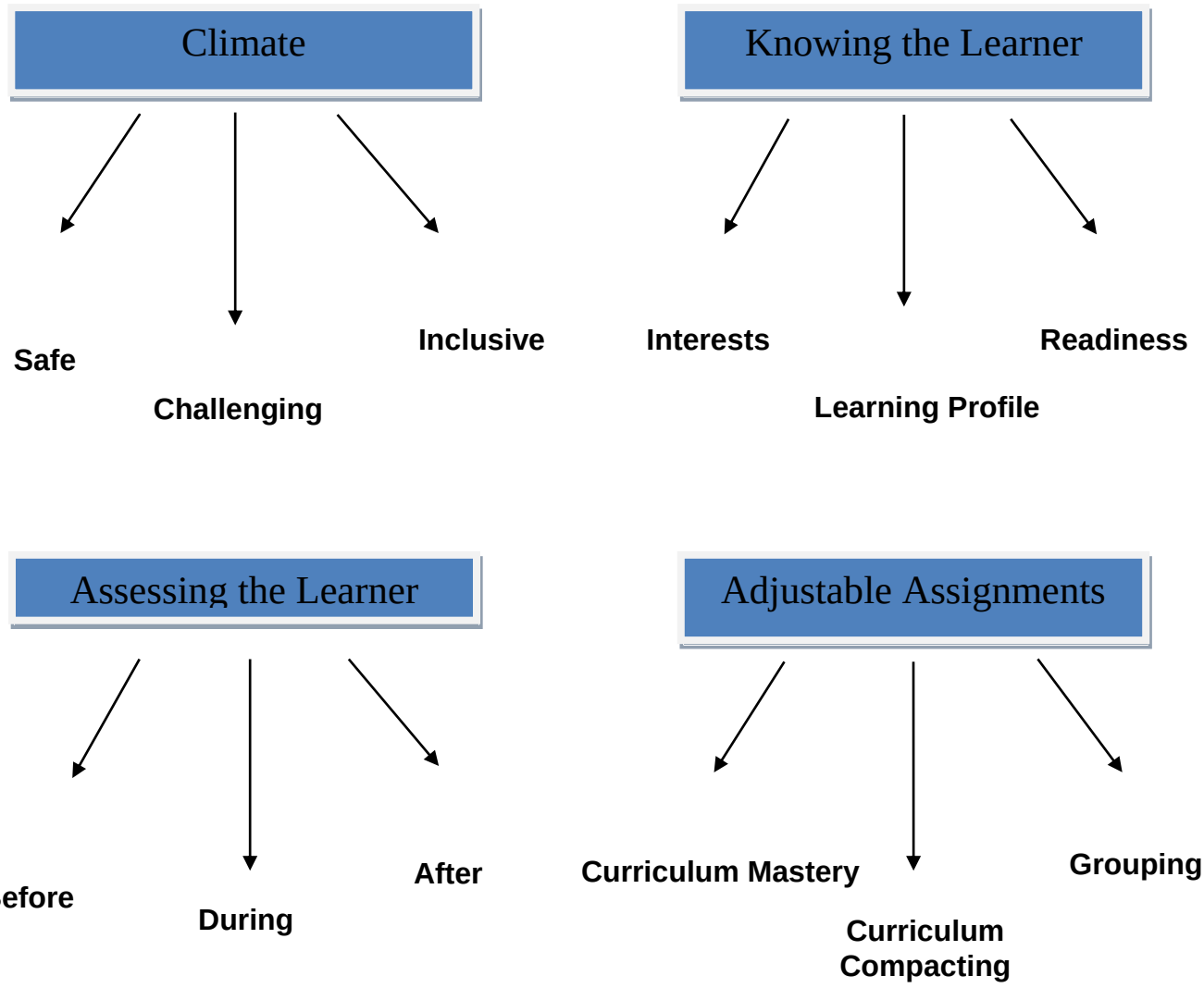
In your classroom, this means:

- supporting diverse learners by instructing in ways that recognize that:
    - students learn best when they are actively involved in and physically interactive with their environment;
    - students develop a deeper understanding when they are encouraged to construct their own knowledge;
    - students benefit from choice, both as a motivator and as a mechanism to ensure that they are working at an optimal level of understanding and development;
    - students need time and encouragement to reflect on and communicate their understanding;
    - students need considerable and varying amounts of time and experience to construct knowledge.

Considerations:

- Successful differentiated instruction facilitates all types of learners. As a teacher, aim at developing a combination of teaching strategies that are responsive to all students' needs.
- You can do this by:
    - using a variety of groupings to meet student needs;
    - providing alternative instruction/assessment activities;
    - challenging students at an appropriate level, in light of their readiness, interests, and learner profile.

A Differentiated Classroom in Balance



Suggested Grade Levels for Using Teaching Strategies

Grade	Suggested Strategies
Kindergarten	▪ Adjusted Questions ▪ Choice/Task Cards ▪ Flexible Grouping ▪ Learning Centres ▪ Pre-assessment ▪ Tiered Assignment
Grade 1	▪ Adjusted Questions ▪ Choice/Task Cards ▪ Flexible Grouping ▪ Learning Centres ▪ Pre-assessment ▪ Tiered Assignment
Grades 2–3	▪ Adjusted Questions ▪ Choice/Task Cards ▪ Curriculum Compacting ▪ Multiple Entry Points ▪ Flexible Grouping ▪ Graphic Organizers ▪ Independent Study ▪ Learning Centres ▪ Pre-assessment ▪ Tiered Assignment
Grades 4–5	▪ Adjusted Questions ▪ Agenda ▪ Choice/Task Cards ▪ Curriculum Compacting ▪ E-Learning ▪ Multiple Entry Points ▪ Flexible Grouping ▪ Graphic Organizers

	▪ Independent Study ▪ Learning Centres ▪ Pre-assessment ▪ Tiered Assignment
Grades 6–8	▪ Adjusted Questions ▪ Agenda ▪ Choice/Task Cards ▪ Curriculum Compacting ▪ E-Learning ▪ Multiple Entry Points ▪ Flexible Grouping ▪ Graphic Organizers ▪ Independent Study ▪ Learning Centres ▪ Pre-assessment ▪ Tiered Assignment
Grade 9–12	▪ Adjusted Questions ▪ Agenda ▪ Choice/Task Cards ▪ Concept Mapping ▪ Curriculum Compacting ▪ E-Learning ▪ Multiple Entry Points ▪ Flexible Grouping ▪ Graphic Organizers ▪ Independent Study ▪ Learning Centres ▪ Pre-assessment ▪ Social Action Projects ▪ Socratic Dialogue ▪ Tiered Assignment

Strategies

1. ABC Brainstorming/Alphablocks

ABC brainstorming/Alphablocks is a tool that can be used to activate a student's prior or pre-assess knowledge before you introduce a major topic.

Process

- Give students the ABC brainstorming chart (see page following) or have students list all the letters of the alphabet in a column down the left margin of a sheet of paper.
- Students work individually to think of as many words as they can that are associated with the topic you identify. *Note: The topic should be general enough that students can actually think of a lot of possible terms.*
- Students begin filling in the blanks beside each letter of the alphabet. For instance, if the topic were **World War II**, students might list **A**llies, **B**ombers, **C**oncentration Camps, **D**achau, **E**urope, **F**rench Resistance, **G**ermany, **H**itler, **I**taly, **J**apan, and so on. These may be completed in any order.
- Give students enough time to think of many ideas.
- After sufficient time, have students work in pairs or small groups to fill in blanks for letters not yet completed.
- When all groups are finished, go around the room asking for possible words for each letter.
- Answers must be relevant to the topic being discussed.

Adaptations

Rather than brainstorm ideas for all 26 letters of the alphabet, students brainstorm ideas within groups ("blocks") of letters (ABC, DEF, GHI, and so on) using the Alphablocks chart. This simplifies and speeds up the brainstorming, while still requiring students to turn their attention to the topic at hand.

Sample ABC Brainstorming and Alphablocks templates are available on the next page.

Source: Reading Quest.org: Making Sense of Social Studies www.readingquest.org/strat/abc.html

A B C Brainstorm

T O P I C

A _____ N _____

B _____ O _____

C _____ P _____

D _____ Q _____

E _____ R _____

F _____ S _____

G _____ T _____

H _____ U _____

I _____ V _____

J _____ W _____

K _____ X _____

L _____ Y _____

M _____ Z _____

Summary Paragraph:

.....

.....

.....

.....

.....

.....

ALPHA – BLOCKS TEMPLATE

ABC	**DEF**	**GHI**
JKL	**MN**	**OPQ**
RST	**UVW**	**XYZ**

Source: www.readingquest.org

Variation 1: Alphabet Soup

- Place the letters of the alphabet in a container.
- Each student draws a letter from a container.
- Each student must then create a response beginning with that letter that summarizes some aspect of the topic or subject being studied (e.g., Canada, elements of the periodic table, WWII, letter sounds).

Variation 2: Alphabet Teamwork

Process:

- Within small groups, have the students write the alphabet down the left side of a piece of paper or use ABC Brainstorming template provided p.12.
- One team member is the recorder.
- When told to start, the team will list a concept, idea, or thought learned from that day's lesson or from the unit so that each letter of the alphabet is used in a significant way.
- Have the students highlight in colour the word in the alphabet line that is the important one for that line.

Example:

A — ***Atoms*** are made of neutrons, electrons and protons.
B — Electrons can ***behave*** as waves.
C — There are over one hundred elements is the periodic table.
(Roman numeral C=100)
D — An atom has a ***dense*** central nucleus.

2. Adjusted Questions and Question Starters

Adjusted questioning is an effective way to differentiate instruction. This is one of the easiest ways for a teacher to help students meet with success but also a way to challenge higher-level students with the use of open-ended, divergent questions. Questions can be adjusted to the level of complexity or abstractness that fits the students' readiness or ability level. It is important to give students wait time and to sometimes allow students the opportunity to pair with a partner for discussion before answering a question. Essential, thought-provoking questions can connect a new concept with the content to be learned and drive the success level upward for students by creating important connections between new content and content previously learned.

Questions which are asked "off the cuff" tend to be knowledge based. Therefore, it is important that key questions be developed prior to a lesson to ensure **all** students experience a variety of levels according to Bloom's Taxonomy. Be sure not to preserve more complex questions for more advanced students. All students should experience a variety of levels. Provide scaffolding (partners, suggestions, steps) for those who may need support to tackle more challenging questions.

Process:

It is suggested that teachers:

- Ask questions that require more than recalling a fact or reproducing a skill - the best questions are open-ended.
- Use more process questions (requiring the student to reflect, analyze, and explain his/her thinking and reasoning) than product questions (requiring short answers, yes/no responses, or relying almost completely on memory).
- Replace lectures with sets of questions.
- Be patient. Wait time is very important; increasing it to five seconds or longer results in better responses. (Steven Reinhart, 2000)

An example of a Q-Matrix can be found on the next page. This matrix contains questions stem in a continuum of thinking levels required.

Q-Matrix

The movement of question stems moves from left to right in increasing level of processing.

	Event	Situation	Choice	Person	Reason	Means
Present	What is?	Where/ When is?	Which is?	Who is?	Why is?	How is?
Past	What did?	Where/When did?	Which did?	Who did?	Why did?	How did?
Possibility	What can?	Where/When can?	Which can?	Who can?	Why can?	How can?
Probability	What would?	Where/When would?	Which would?	Who would?	Why would?	How would?
Prediction	What will?	Where/When will?	Which will?	Who will?	Why will?	How will?
Imagination	What might?	Where/When might?	Which might?	Who might?	Why might?	How might?

Sources: Reinhart, S.C. (2000), Mathematics Teaching in the Middle School, 5(8), 478-483.
Q- Matrix retrieved from: Assessment for Learning: Curriculum Corporation, Australia
www.assessmentforlearning.edu.au/verve/_resources/Filter_question_matrix.doc

3. Anchor Activities

The purpose of an anchor activity is to provide meaningful work for students during ragged time – when a student finishes a task early, is excused from a particular activity, upon first entering class, or when the teacher is working with other students. An anchor activity is a logical extension of learning during a unit. Each activity should expand on important goals and outcomes for which students are held accountable. Anchor activities can be worked on independently throughout the course of a unit or semester. They may be tiered or differentiated according to student interest, ability or readiness.

Process:

- Explain each anchor activity - model and practise the procedure with the whole class.
- Be clear on expectations and responsibilities -establish a clear policy for accountability, evaluation, and value.
- Develop ground rules with students.
- Only use challenging tasks that require some time and thinking - it's not worth the time to create the anchor activity if the student is able to finish it easily and quickly.
- Provide clear instructions and necessary materials.
- Develop an anchor activity that requires students to use multiple skills and addresses several curriculum outcomes.

Anchor Activity Planning Guide (Considerations for Planning Anchors)

- **Indicators and outcomes:** Ensure that all the skills and/or concepts have been taught previously.
- **Name and description of anchor activity:** Provide the name and a brief description of the activity.
- **Differentiation of anchor:** Be certain that the activity is respectful of each ability level in the class.
- **Instructional task:** Be certain that all students have appropriate anchor activities on which they can work independently.

- **Materials needed:** Ensure that students know where to find the materials they require.
- **Expectations**: Students need to be aware of when they are to work on these activities.
- **Due date:** Outline the time expectations related to the activities - when they are to be completed, and what checkpoints or due dates are applied along the way.
- **Points and/or rubric:** Decide and communicate whether the activities will be graded and, if so, what each will be worth.
- **Accountability:** Students must be made aware of issues such as what is to be collected, where finished work goes, what is checked by the teacher and what is checked by the students.

Additional implementation suggestions:

- Review management strategies with the class so they know what to do if they have a question and you're busy.
- Let students know if any of the activities can be done at home or if they're all meant to be done in class.
- If using contracts, go over the contract with everyone and make sure they all understand the expectations.

Sources: Adapted from Anchor Activities. Montgomery County Public Schools, Rockville, MD
Retrieved from http://k5di.pottsgrove.wikispaces.net/file/view/Planning+Guide.pdf

4. Anticipation/Reaction Guide

Students will use the Anticipation/Reaction Guide to make predictions based on their prior knowledge and then evaluate those predictions after meeting new information.

Process:

- Generate a list of 8 to10 statements related to your topic of study. Place these on an Anticipation/Reaction Guide.
- Provide each student with a copy of the guide.
- Prior to introducing new information, ask students to consider the statements listed on the guide and write whether they AGREE or DISAGREE with them.
- Conduct the lesson.
- After the new content has been taught, have students react to the new information by responding again to the statements on the Anticipation/Reaction Guide.
- Discuss why their before and after answers are different. What did students learn that caused them to change their answers?

An example of an Anticipation Guide can be found on the next page.

Source: Adapted from: Buehl, D. (2001), Classroom strategies for interactive learning. Newark, DE: International Reading Association

Sample Anticipation/Reaction Guide for Temperature Scales

Directions: Read the statements below and decide if you AGREE or DISAGREE with each statement. Write your answer underneath the "Anticipation" column. At the end of the lesson, write your answer underneath the "Reaction" column. Compare your answers. What did you learn?

Anticipation	Statement	Reaction
1. _____	There is only one scale for measuring temperature.	1. _____
2. _____	Water freezes at 32^{o} Fahrenheit.	2. _____
3. _____	Anders Celsius invented the thermometer.	3. _____
4. _____	Well known British scientist, Gabriel Daniel Fahrenheit was the first to boil water.	4. _____
5. _____	The Celsius scale is used as a part of the metric measurement system.	5. _____
6. _____	The Greek prefix "centi" means one-hundredth.	6. _____
7. _____	Using the Fahrenheit scale, water boils at 212 ^{o}.	7. _____
8. _____	Both the Fahrenheit and Celsius scales are based upon the temperature that water boils and/or freezes.	8. _____

Source: Guilford County Schools, North Carolina, U.S.A.
http://its.guilford.k12.nc.us/act/strategies/Sample_Anticipation.doc

5. Bingo

Games are interactive strategies that can be used to improve student engagement. Robert Marzano, a leading researcher in education, reports that using games to teach has led to a 20 percentile gain in student achievement when certain parameters are met.

Process:

- Decide on the educational theme for the Bingo game. Nearly any subject or topic works. You can focus on letter, number and word recognition for younger students. For older students, use Bingo to practice vocabulary words, history events or math facts.
- Decide how many squares you want in your grids. For younger students, use a smaller 3 x 3 grid. For older students, a 5 x 5 square grid gives you more options.

B	I	N	G	O
3/10	3/4	1/9	3/8	1/12
3/5	2/5	7/10	2/3	1/7
1/20	1/8	Free Space	1/3	1/1000
1/10	1/100	5/8	1/2	4/5
1/6	5/6	1/4	7/8	1/5

- Develop the master list of words or numbers. Print a copy of the list and cut the words apart. This set of words is used as your main calling set during the game play.
- Put a selection of the words or numbers into the grid on each Bingo card. (You may wish to laminate the Bingo cards if you plan to use them several times.)
- Hand out the Bingo game cards to the players. Draw one word, number, etc. at a time from your calling set. The students cover the words, numbers or pictures as they are announced.
- Once a predetermined pattern is made on a card, the student with that card calls out BINGO.
- Possible patterns include: full card, T shape, diagonal line, H shape, inside square

Source: Adapted from: http://www.ehow.com/how_5758437_create-educational-bingo-games.html

6. Bloom Ball

Bloom Ball is an activity based on Bloom's Taxonomy that encourages higher level thinking. Students can complete this activity either individually or as part of a cooperative group. It is created by putting together 12 circles that contain key information pertinent to the concept they are studying. Students can research background information to expand their knowledge about the time, the environment, important vocabulary, and other things that deepen understanding. Each circle represents another piece of information students discover, this helps them organize their background information and broaden their knowledge. Teachers may develop a list of required terms or tasks to be demonstrated on each of the 12 circles. Alternatively, students may choose 12 from a list of possibilities governed by parameters set by the teacher. Use all the levels of Bloom's Taxonomy to create tasks for each side of the ball.

Process:

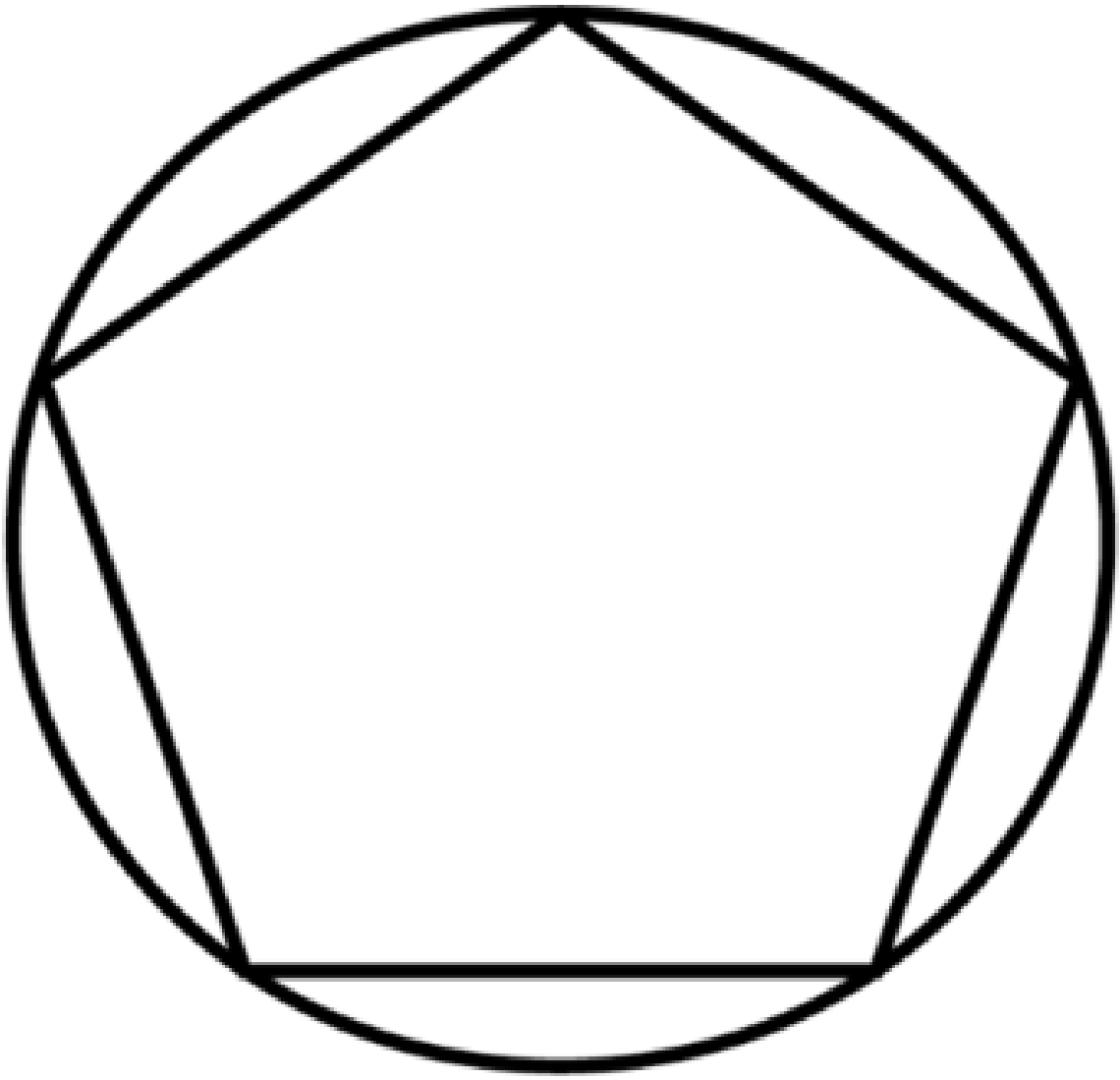
- Have students complete their research.
- Distribute the circle template to each student.

- Tell students: When you are ready to transfer your information to the circle pattern, be sure to observe where the lines of the pentagon are drawn inside the circle. Do not write or draw on the outside of those lines. They will be used as guides for folding and connecting the circles to create your ball.
- When you have completed all 12 circle patterns on your Research Record sheet, cut out the circles (include the black border- you will need it).
- Decorate your folds using the same theme.
- Fold each circle on the lines so that the folds are facing up. Put the circles together and attach the edges with glue or staples. Be sure that all edges are facing up around your pictures or paragraphs.

A sample template for Bloom Ball can be found on the next page.

Template:

The size of the template may be increased as desired to create a larger product.



Source: Rebecca Radicchi, West Virginia Department of Education
http://wvde.state.wv.us/strategybank/BloomBallActivity.html

7. Carousel K-W-L

This is a useful way to turn your K-W-L chart into an interactive activity. The teacher can choose one topic for all 4 groups or give each group a different question based on the same topic.

Process:

- Choose one of the major topics students will cover during a unit of work.
- Create 4 K-W-L charts - Place the topic at the top of each chart and post them around the classroom.
- Divide students into 4 groups. Give each group a different colored marker and tell them to go stand next to a specific chart. Ask each group to appoint a recorder. Under the K- section of the chart, each group records things they know about the topic. Under the W- section of the chart, they record what they would like to know.
- After a few minutes, have each group rotate to another chart. Ask the group to look at the list written by the other group and put a checkmark (with their colored marker) beside the things they also knew about the topic and then make their own additions to the K – section of the chart.

- Continue rotations until all students are back where they started. Now ask each group to select a reporter.
- Give each group a few minutes to look over their chart. Then ask the reporter in each group to give the class a brief summary of the information on the chart.
- After the class completes the work on the topic, have students return to their charts to discuss with the group or entire class what they have learned. At this time, complete the L-section of the chart.

Source: Source: Hollas, B. (2007). Differentiating Instruction in a Whole-Group Setting. Crystal Springs Books. New Hampshire

8. Centres/Stations

Centres are great for differentiating instruction. They can be organized in a variety of ways: skill level, interest level, multiple intelligences and/or content. Centres can be used in any subject area and help in fostering independence. There are a number of types of centres:

1. Stationary Centre – An activity centre is set up in the classroom, as an aside, to support subject area learning. Students are free to explore the centre during free time or when their assigned work has been completed.

2. Rotating Activity Centres – Subject/topic oriented activities are set up in the classroom and are completed by small groups of students during scheduled class time. Students are usually placed in groups of 2-4 students and are provided with centre supplies and instructions to be completed during one class. The students rotate through the centres over a few days or a number of class periods. All students complete all centres. Although planning is required initially, once the centres are prepared, and the students understand what they have to do, teachers can run the centres without much maintenance over the course of a few days.

3. Student Interest Centres – Students are provided with a selection of activities from which to choose and complete individually. These activities can be used as part of instruction, or as items the students can work on during their free time. Teachers can set requirements for completion. Students often show increased levels of motivation when they are given the opportunity to direct their own learning.

9. Circle of Knowledge

Using this strategy, groups of students have the opportunity to generate multiple answers to open-ended questions in a structured brainstorming session. This is a good strategy to be used for review or reinforcement.

Process:

- Form small groups of 3 to 6 members.
- Pose one open-ended question to the whole group (there should be enough possible answers for each group member to answer once or twice).
- Specify a short time limit (1-3 minutes).
- Designate one team member as a recorder, who will both record and contribute answers.
- Start the process.
- Group members take turns contributing one answer, turns move clockwise – (Students may not pass but if a member is stumped, the other group members may provide hints).
- At the end of the time period, groups take turns reporting one answer at a time to the whole group.
- Answers are recorded on the board for review.

- The teacher then asks another question and the process continues.

Sources: Dunn, R., & Dunn, K. (1992), *Teaching Elementary Students Through Their Individual Learning Styles: Practical Approaches for Grades 3-6,* Allyn & Bacon
http://media.hcpss.org/newcode/strategies/strategies.php

10. Clipboard Cruising

Clipboard Cruising is a type of informal assessment which may be used in your classroom to gauge student understanding of a concept(s) or unit being taught.

Process:

- The teacher takes a data collection sheet containing the name of each student, date, concept and observation. (A sheet of labels or sticky notes works well too). Use a clipboard to hold the sheet(s).

- "Cruise" about your class with a specific objective in mind that you are observing or assessing. While your students are working alone, in pairs or in groups, make notes of how each student is working through a problem or assigned work.
- Then, use this information to shape instruction. The notes/observations can also be removed from the clipboard and placed in the student's folder to track progress over time.
- Some teachers use specific checklists while observing students. Other teachers look for one specific outcome. For example, if a teacher notices that half of the class is not using capital letters at the beginning of their sentences, then some re-teaching may need to occur.

Sample Data Sheet:

Concept:		
Student Name	**Date**	**Observation**

Source: Gregory, G. & Chapman, C. (2007). *Differentiated instructional strategies: One size doesn't fit all (2nd ed.)*. Thousand Oaks, CA: Corwin Press.

11. Colourful Words

This strategy encourages students to learn to use richer vocabulary words. This better prepares students for increased comprehension and well-developed writing.

Process:

- Divide students into small groups (no more than 6 per group).
- Give each group an overused, common word (such as good, happy, interesting, look, or nice).
- Ask students to brainstorm words from their own experiences or they can choose words from a dictionary.
- Give students a limited time to find as many colourful synonyms as possible.
- Have students rank the synonyms in terms of intensity of meaning.
- Use strips of coloured paper from light to dark shades (or paint colour sample strips). Have students place the least intense words on the lighter shades of paper and the more intense words on the darker shades of paper.
- Have each group present their colourful words to the class.
- Write the overused word at the top of a sheet of poster board and then paste the synonyms under it starting with the least intense shades of paper and ending with the most intense shades of paper. Post in the classroom for a reference.

Example of colourful words:

Colourful Words	
over-used word:	**happy**
synonyms	**glad** **blessed** **content** **ecstatic** **jubilant**

Source: Gregory, G. & Chapman, C. (2007). *Differentiated instructional strategies: One size doesn't fit all (2nd ed.*). Thousand Oakes, CA: Corwin Pres

12. Conversation Circles

This strategy is a great way for students to process and review information from the lesson. It could also be used prior to starting a lesson.

Process:

- Arrange students in groups of three.
- Each student is assigned “A”, “B”, or “C”.
- At the signal, “A” starts talking on the topic until the teacher gives a signal (about 45 to 60 seconds).
- “B” picks up the conversation. “B” can continue with the topic where “A” left off, add more detail, give examples, or repeat what “A” said if they feel they have nothing new to add.
- When the teacher gives another signal (45 to 60 seconds later), “C” continues the conversation in the same manner as did “B”. When the teacher gives the 3rd signal, the conversation can end or can go around again starting with “A”. Less time might be given on the second pass.

A related strategy is “**wrap-arounds**”.

Students stand in a circle of up to 5 students. Each student takes a turn telling:

- Something they will use from the activity or information learned in the lesson.
- Something they will remember from the lesson.
- Something that surprised or interested them during the lesson.

Source: Gregory, G. & Chapman, C. (2007). *Differentiated instructional strategies: One size doesn’t fit all (2nd ed.*). Thousand Oakes, CA: Corwin Press

13. Cubing/Think Dots

Cubing and Think Dots are instructional strategies used to help students think about a topic or idea from many different angles.

Process:

- Students are provided cubes with a different activity related to a common topic on each face.
- Students roll the cube to determine the activity they will undertake to interact with the topic, or demonstrate their learning.

OR

- Some teachers choose to visually display a cube net with each face numbered and the activity written on it (overhead, white board, poster).
- Students then roll a small die and complete the task with the corresponding number. To provide choice, students may roll twice and choose their preferred activity of the two.

Think Dots are set up in a very similar manner but instead of putting the six activities on the faces of a cube, each activity is written on an index card.

- The back of each index card has an array of dots such as appear on the faces of a die.
- The cards are joined by punching a hole in one corner and threading them on a binding ring.
- Students then roll a small die and choose the activity card which has the dot pattern corresponding to the number rolled on the die.

An example of a Think Dot can be found on the next page.

Science Lesson

Think DOTS – Matter

How do the atomic numbers in the periodic table change from the top to the bottom? From the left to right across the table? 	Predict as many properties for potassium as you can. To make your predictions, look at the information in the box for this element and consider its location on the periodic table. 	Carbon is atomic number 6. How are two carbon atoms with mass numbers of 12 and 14 different? Why are these atoms called isotopes? 
Why do you think scientists used the term “cloud” to describe the position of electrons in an atom? 	There are three jars in the front of the room. Each has a strong odor. One is a solid, one is a liquid and one is a gas. Which odor would students in the back of the room smell first? Why? 	Suppose you were given some sugar cubes, a grinder, some water, a pan and a hot plate. What physical and chemical changes could you make in the sugar? 

Sources:http://daretodifferentiate.wikispaces.com/file/view/Figurative+Language+Think+Dots.pdf Sample Think Dots
http://2differentiate.pbworks.com/f/Science.pdf

14. Curriculum Compacting

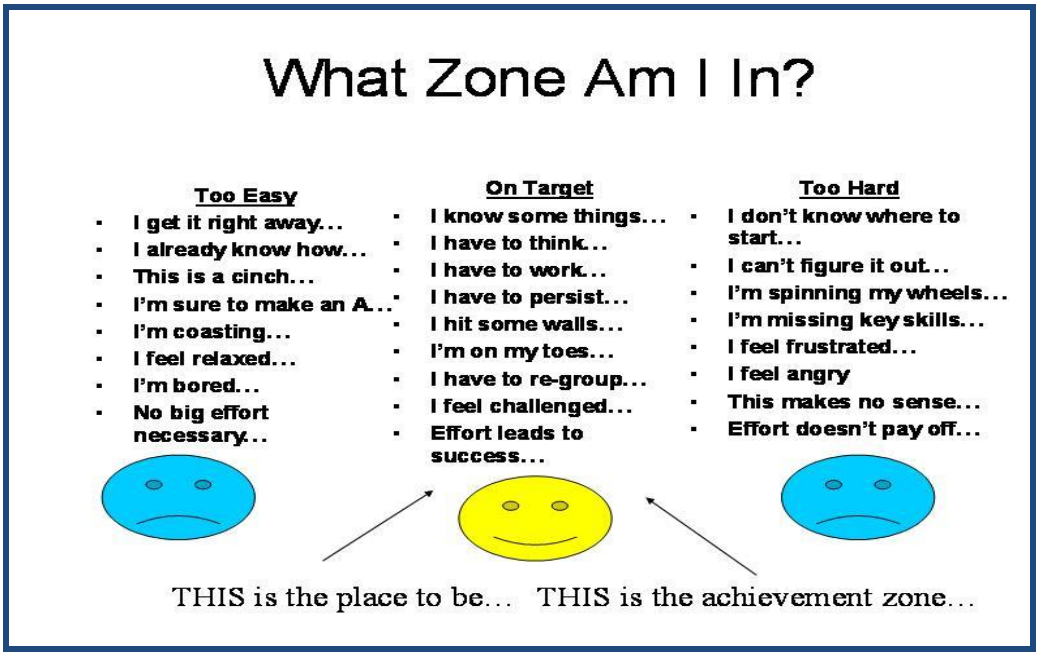
One of the most accessible strategies for addressing the needs of gifted and talented learners is Curriculum Compacting. Often, it is also applicable to students who are high achievers. It attempts to eliminate or streamline curriculum content material.

Process:

- **Name It -** Identify areas where a student excels or shows exceptional interest and ability where compacting may be considered.

- **Prove It -** Before a unit of work is started, the student(s) is pre-assessed on the outcomes to be presented. If a student demonstrates mastery (generally 85%) of a particular outcome, he or she is excused from that instruction and related practice.

- **Change It -** The student then completes alternate content during the time the class is involved in the prescribed material. Depending on the amount mastered before instruction, the student may "buy time" for deeper investigation into the topic at hand, or to allow for independent study on a topic of interest to the student – subject to the working conditions outlined by the teacher. It is not intended as a time for remediation of deficits or "catch up" in weaker areas.



Source: http://www.gifted.uconn.edu/nrcgt/newsletter/fall99/fall996.html

15. D.E.A.Q. – Drop Everything and Question

This activity encourages students to take responsibility for their own learning. By providing key words and sample questions, students are able to generate a range of questions about a particular topic.

Process:

- Make a copy of the Bloom's Taxonomy sheet (attached) for each student in your class.
- Hand out the Bloom's Taxonomy sheets and assign different levels of questions to individuals or groups of students. Make sure students understand that they are to come up with a set of questions that are at the assigned level and relate to the topic of study.
- Challenge students to see how many questions they can generate in 10 minutes.
- Collect all the questions and review to see which ones can be included in class discussions, assignments or journal topics.
- Discuss with your students how the different levels of questions demand a different level of thought.

An example of Bloom's Taxonomy Question Sheet can be found on the next page.

Here is the link to the website where it can be found to make larger copies.
http://australiancurriculumresourcesf-6.wikispaces.com/BloomTaxonomy

As well, you will also find a Question Matrix on page 36. This may also assist your students to develop questioning skills.

Sources: Hollas, B. (2007). *Differentiating Instruction in a Whole-Group Setting*. Crystal Springs Books. New Hampshire https://lccfestivaloflearning2012.files.wordpress.com/2012/10/support-document-13-blooms-taxonomy-teacher-planning-kit.jpg

16. Exit and Entrance Cards

Exit cards are quick assessment tools which can be used by teachers to help them become more aware of a student's understanding of concepts taught. They may be used at any grade level and subject area and can be general or specific, depending on the desired learning outcome. Students respond to a question that is posed by the teacher at the end of class or a lesson.

Process:

- Distribute an exit card to each student prior to the end of class.
- Students write their names on their cards.
- The teacher poses a question(s) to which students respond. The question must be short and should take the students a maximum of 5 minutes to complete.
- As the students leave the classroom, they drop their exit cards into a container or hand them to the teacher.

Essentially, the exit card is a ticket to leave - it may be called a 'ticket out.'

General Examples:

- Write one question that you still have about today's topic/lesson.
- What are the three things that you learned today?

Specific Examples:

- Explain the difference between simile and metaphor.
- Explain or draw your understanding of photosynthesis.
- List 3 chores for which native women were responsible.

Exit Card Example
3 things you know about the water cycle
2 things that connected for you
1 question you still have

Similarly, such cards can be used before instruction and serve as an **entrance/admission card** to gauge prior student knowledge of the upcoming topic. These may also be used prior to beginning a new area of instruction in order to pre-assess student prior knowledge or experience with the topic. This would aid in the development and planning of a new area of study.

Sample entrance cards:

- Explain the difference between meiosis and mitosis.
- What do you know about the life cycle of a butterfly?
- What do you know about WWI?
- Solve for x. (2x + 6 = 14)

The type of question is determined by the type of response a teacher is eliciting from the students. The question could ask for a skill to be demonstrated, a concept explained, an objective understood, or even a perception check of students' feelings.

Source: Dodge, J. (2009). *25 Quick Formative Assessments for a Differentiated Classroom.* New York, NY: Scholastic Inc.,

17. Fist of Five

This formative assessment technique quickly allows the teacher to gauge the understanding of the learners in his/her classroom.

Process

- After presenting a lesson, or part of a lesson, the teacher asks students to use their hand to signal their depth of understanding. A fist means, "I don't understand any of it," while all five fingers out means, "I understand it completely." Students can also signal by raising 1, 2, 3, or 4 fingers.
- The teacher can readjust the next lesson or section of the lesson as needed based on student response.
- To hold students more accountable for their response, the teacher can call on someone who signaled a 5 to explain the concept to the class, or partner students who understand (5) with those who don't (0) and let them teach each other for a few minutes.

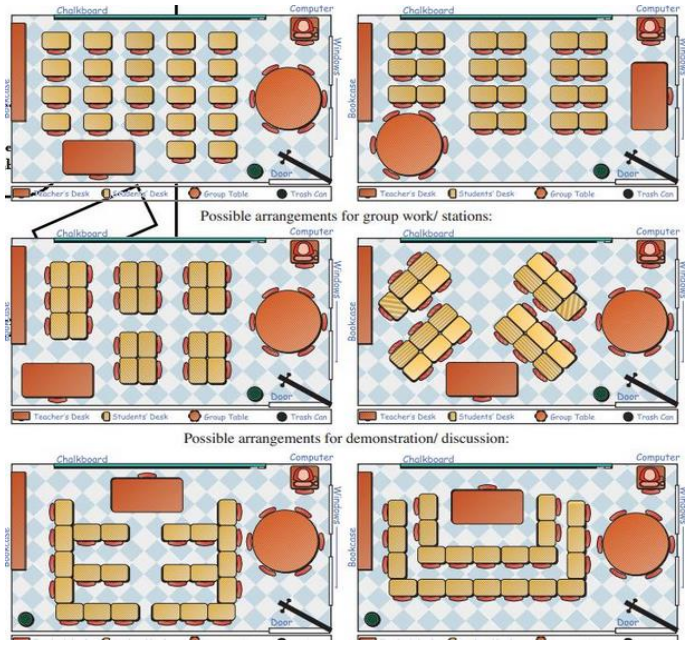
Source: http://senoraspeedy.blogspot.ca/p/about-this-blog.html

18. Flexible Grouping

When planning for lessons, teachers need to carefully consider how students learn best. Some students are very social able and like working in small groups. Others have a preference for working on their own, while others like to work with only one partner. Some students work well in any type of grouping.

Inclusive classrooms implement flexible groupings for learning. There are numerous ways to group your students. **TAPS** is an acronym for how you can group students in your classroom.

- **Total Group:** can be used when presenting new information, modeling new skills, guest speaker, viewing a video, pre-assessment, Jigsaw strategy, or a textbook assignment.



- **Alone:** can be used when journal writing, portfolio assessing, self-assessment, independent study, note taking and summarizing, reflection, pre-assessment or exit cards.
- **Partner:** can be used when brainstorming, checking homework, checking for understanding, processing information, peer editing, peer evaluation, researching, interest in similar topic, planning for homework and Think Pair Share activity.
- **Small group:** can be used during problem solving activities, group projects, learning centres, cooperative group learning assignments, portfolio conferences, group investigation, carousel brainstorming, graffiti brainstorming and cluster grouping.

Keep in mind that ***Total Group*** is most effective during the activities listed above. However, once follow-up work begins, the total group can disperse into various group configurations. All students need ample opportunity to work in a variety of groupings which build independent work skills as well as team skills.

Source: Gregory, G. (2003). "Instructional Strategies for Student Success." Differentiation instruction, one size doesn't fit all. Corwin Press.

Grouping Strategies

1. Appointment Cards - Using appointment cards is a quick and easy way to create pairs for partnered activities while avoiding the problem of students repeatedly working with the same groups. It is also a great way to structure movement about the classroom under the teacher's direction.

Process:

- Each student receives or creates an appointment card (perhaps on an index card) with a blank line next to each hour.
- Each student then goes to various classmates in turn to find a different partner for each hour. For example, if Mike goes to Joe, Joe signs Mike's clock at 2 pm and Mike signs Joe's card for the same time.
- Each student may appear only once on each card and all hours must be filled in.
- The cards are then attached to the inside cover of their notebook or workbook.
- When you want students to work with a partner, you call out a particular time, for example, "It's time for your _____ o'clock appointment." Students will then partner with the buddy whose name is at the specified time slot.

This strategy may be tailored to particular situations such as the teacher assigning the 10:00 appointments in order to pair students of differing abilities for a particular activity. When the time for that appointment comes along, teachers ask students to find their 10 o'clock partner and the pairing is in place without bringing any attention to the performance level of individual students or the perception that the students have been grouped by ability.

This strategy easily organizes the flexible grouping of students both randomly and strategically. Sets of appointment groups may be asked to combine to provide larger groups. This strategy is useful in that it allows students to get up and move periodically but the movement is purposeful and short in duration without infringing on instructional time. This is particularly appealing for kinesthetic learners.

Note: The times appearing on the card does not have to correspond to the actual time of day.

Examples of Grouping Strategies can be found on the next page.

Appointment Card

Name:

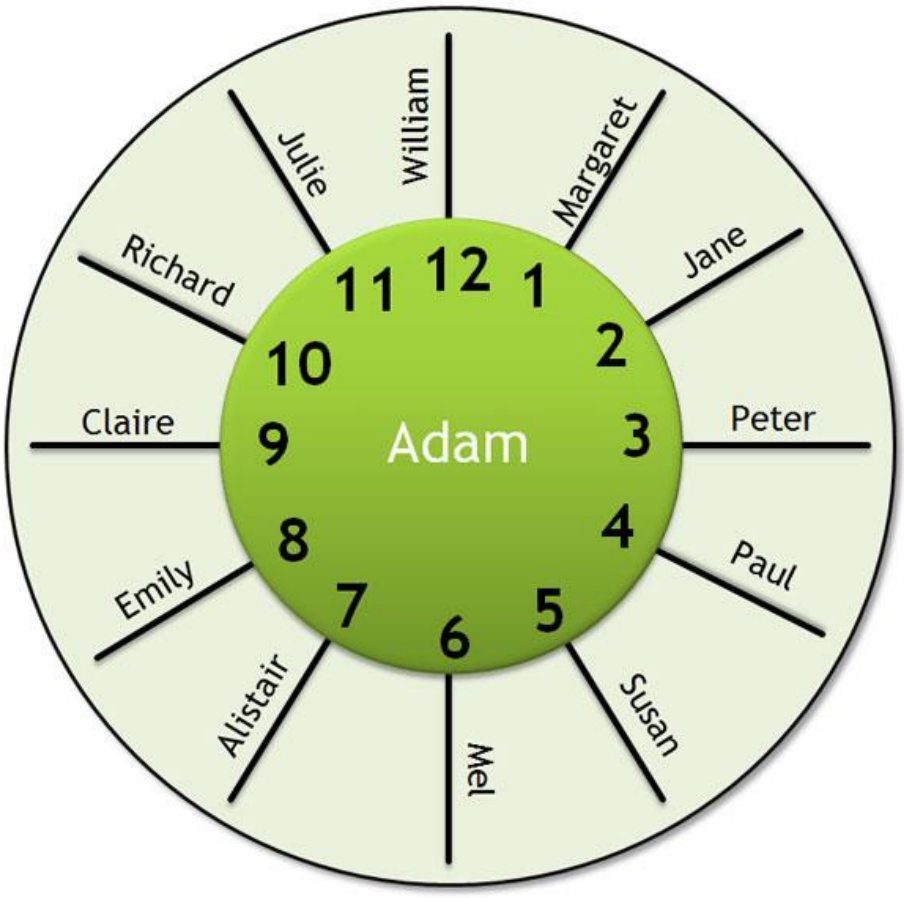
Date:

09:00 _____

11:00 _____

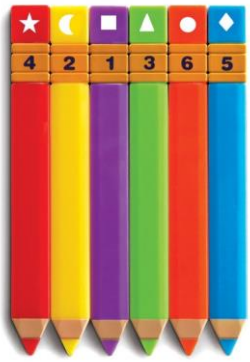
01:30 _____

2. Clock Buddies – This strategy appeals to younger learners. Students have a template in the shape of a clock with a line next to each hour. Pairs have each other's names written in the space corresponding to the different hours.



3. Grouping Pencils – Group students by the pencil colour, number or shape (on the pencils). This tool simplifies management of learning groups and helps ensure that you call on every student to participate. Each pencil allows enough space to write a student's name. Give each student a pencil and then say “red pencils form a group, triangles form a group”, etc.

   Note: These pencils are commercially available or they can be made using coloured Popsicle sticks or wooden coffee stirrers.



4. Grouping Software – Software for grouping can be purchased through Kagan online: http://www.kaganonline.com

5. Puzzle Pieces – Use children’s puzzles with a limited number of pieces. Give a piece to each student and have students walk around the class to find the other pieces to complete the puzzle. The completed pieces form the group. Puzzles with 2, 3, 4 and 5 pieces can be found at department stores and book stores.

6. Famous Pairs – Using the names of famous partners, create cards for grouping. Examples might include: Mickey and Minnie, Sonny and Cher, Rocky and Bullwinkle, Jack and Jill. Hand out the cards randomly to the class and ask students to find their partner.

7. Number Off – Have students form groups by assigning a number to each student. The number you use depends upon how many you want in a group. For example, if you want five groups, you would assign the numbers 1, 2, 3, 4 or 5 to students in your class. Then ask all the ones to get together, all the twos, all the threes and so on.

Sources: Reading Quest.org: Making Sense of Social Studies Retrieved from www.readingquest.org/strat/clock_buddies.html and http://www.kaganonline.com

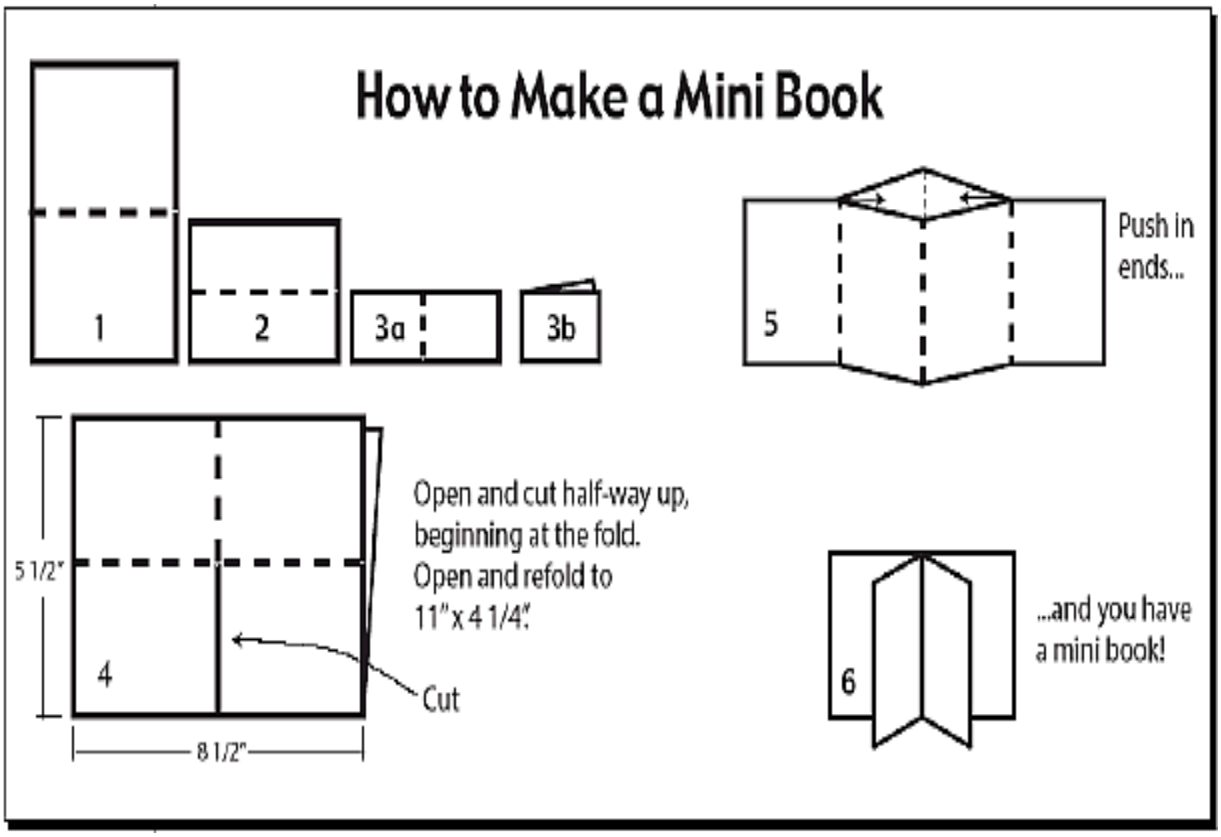
19. Foldables™

Foldables™ are three dimensional graphic organizers that are student made. They can be used for pre-assessment, as a learning tool or as an assessment of learning. There are many designs that can be used. The design you choose will depend on the purpose of its use. They can be single sheets or incorporated into a student notebook.

Process

- Decide on the purpose of the foldable.
- Select a design that supports the purpose.
- Provide a sample or step by step directions to show students how to create the foldable.

Below is an example of a Foldable. Many more examples are available at http://www.dinah.com/



Sources: http://teachscience4all.wordpress.com/2010/01/09/foldables-in-science/
http://foldables.wikispaces.com/Foldables

20. Four Square Products

This activity addresses the varied learning styles in your classroom while allowing your students to demonstrate what they have learned.

Process:

- Make a copy of the four square sheet attached for each student in your class. Three of the four squares represent ways students learn: visual, auditory, and kinesthetic. The fourth square gives options for written products.
- Develop a rubric to assess the different products using the same quality standards.
- Let students choose from the options to demonstrate what they have learned.

Four Square Products

Visual	**Auditory**
○ **Advertisement** ○ **Collage** ○ **Flowchart** ○ **Map Video** ○ **Painting** ○ **Poster** ○ **Story Map** ○ **T-Chart** ○ **Timeline** ○ **Venn Diagram**	○ **Audiotape** ○ **Book Review** ○ **Debate** ○ **Group discussion** ○ **Interview** ○ **Lecture** ○ **Movie Review** ○ **News Broadcast** ○ **Rant** ○ **Speech**
Kinesthetic	**Written**
○ **Bulletin Board Display** ○ **Dance** ○ **Diorama** ○ **Experiment** ○ **Mobile** ○ **Pantomime** ○ **Performance** ○ **Role Play** ○ **Sculpture** ○ **Skit**	○ **Book Report** ○ **Checklist** ○ **Essay** ○ **Journal** ○ **Letter** ○ **Newsletter** ○ **Poem** ○ **Research Paper** ○ **Story** ○ **Survey**

Source: Hollas, B., (2007). "Ongoing Assessment Window" *Differentiating instruction in a whole-group setting: taking the easy first steps into differentiation*. Peterborough, NH: Crystal Springs Books.

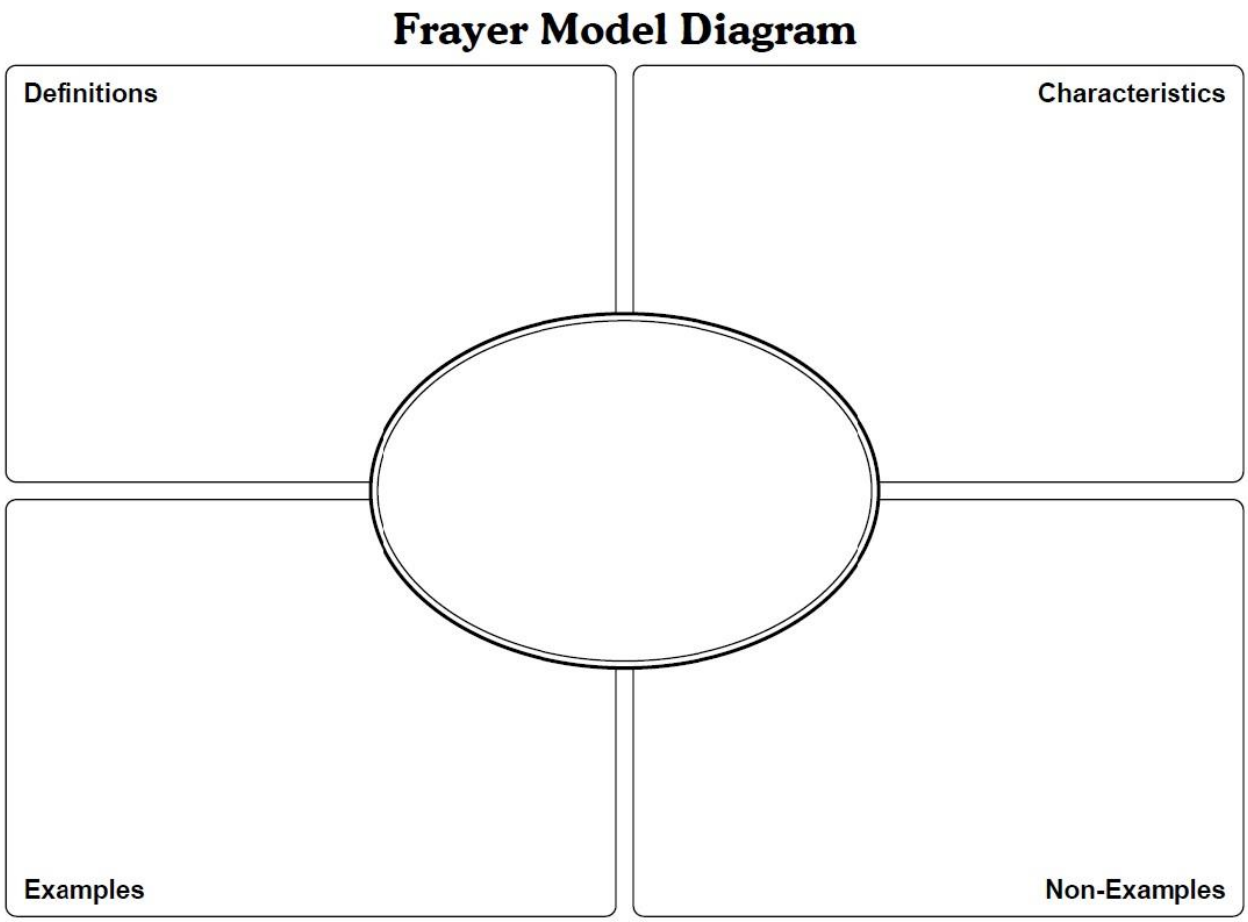
21. Frayer Model

This graphic organizer helps students understand key words and concepts. Students gain a deeper understanding of a term or topic and its relationship to their own lives.

Process:

- Write the topic or term in the centre.
- Explain (in their own words) their understanding of the term or topic (definition).
- List or describe its characteristics.
- Provide examples and non-examples of the term or topic.
- Students can share their diagrams with a small group or the whole class.

Template:



Sources: http://oame.on.ca/main/files/thinklit/FrayerModel.pdf
http://www.worksheetworks.com/miscellanea/graphic-organizers/frayer.html

22. Give Me 10 Questions for this Answer

Through this activity students can demonstrate their level of understanding of key concepts/skills taught during the unit of work. It is a flexible activity that can be used at various grade levels and in various subjects.

Process:

- Give students a word related to the content being studied and tell them that the word is the answer.
- They need to come up with 10 questions that have that answer.

You can easily increase or decrease the complexity of this quick assessment based on the content you are addressing.

Examples:

1. Write 10 words that start with any letter of the alphabet that is related to the topic being discussed. For example, collect 10 items that begin with the letter “B”.
2. Come up with 10 questions to which the answer is the word "abolitionist."
3. Give 10 different equations, using exponents and their base numbers only, that equal 24.

Source: Staff Development for Educators (SDE) Workshop, Columbus, Ohio (2010)

23. Give One, Get One

Give One, Get One is a strategy which is useful for activating and assessing prior knowledge of a topic or reviewing material which has been covered during a particular segment of instruction.

Process:

- Each student is asked to generate several points about a given topic and write them on a slip of paper. If necessary, students may be supported in this step by pairing up to create their original list.
- Students are then asked to take their lists, circulate through the classroom and share one of their points with a classmate. They will then get one point back from their partner. This point is added to their personal list.
- Partners thank each other and move on to find another classmate with whom to interact. The activity may end when a specific number of points have been gathered or on a separate cue such as when the music stops.

Sample Give One, Get One:

List two behaviours which are common to gifted and talented learners.

1._____2._____

Mix and mingle with the group to compile a list of 10 traits common to gifted and talented students by trading with your colleagues.

3. _____ 4. _____

5._____ 6._____

7._____ 8._____

9._____ 10._____

Source: Gayle Gregory Training Session Handout, St. John's, NL (2009)

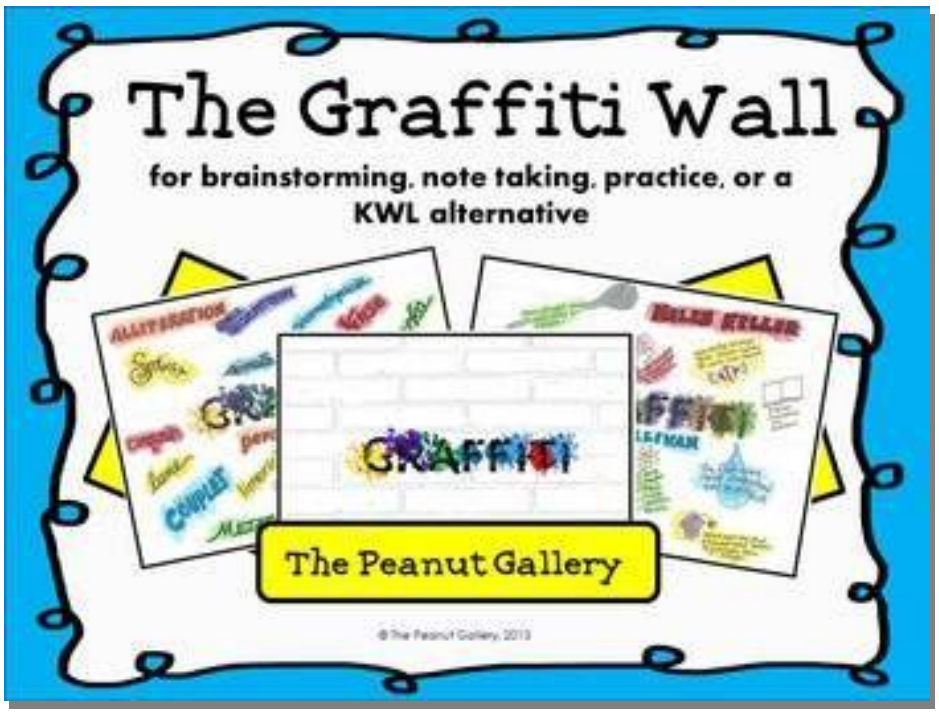
24. Graffiti Fact

This strategy may be used as a pre-assessment or post-instruction activity.

Process:

- Introduce the topic/concept and give each student a Post-it® Note.
- Ask the students to write or draw a picture of what they know about the given topic.
- Have each student place their "fact" on the board or classroom wall. Ask each student to pick a Post-it® Note other than his/her own and read aloud or have the students scan the notes on the wall for the purpose of information gathering.

This will help you gauge where each child is in their understanding of the topic/concept. Plan your lesson based on the information provided to you by your students.



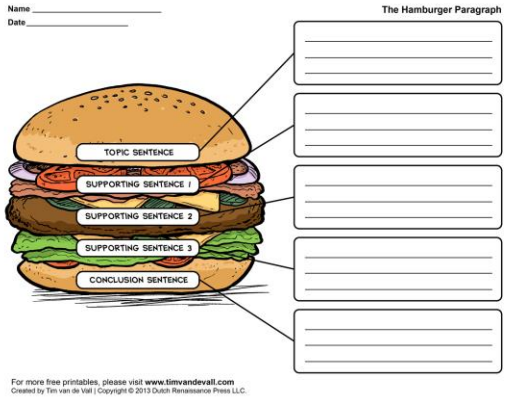
Source: Gregory, G. & Chapman, C. (2007). Differentiated instructional strategies: One size doesn't fit all (2nd ed.). Thousand Oaks, CA: Corwin Press.

25. Graphic Organizers

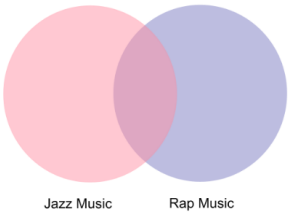
Graphic organizers are great for all learners but especially visual learners to make notes and connections, as well as recognize sequences, similarities and differences. One variation which extends these advantages for kinesthetic and tactile learners is to provide hands-on versions.

Examples of graphic organizers:

- Graphic organizers can be used as a brainstorming tool for all subject areas.



- Use a Venn diagram on a smart board so that students can sort words or facts by moving them into categories.



- Pocket charts are available in double and triple Venn configurations so that students can sort and move without technology.

Another possibility is to borrow hula hoops from the gym and arrange them on the floor to create the outline for the diagram and then use pre-written index cards to organize or allow students to use sticky notes and a pen or pencil to make the labels needed.

Graphic Organizers can be found on the following websites:

http://www.eduplace.com/graphicorganizer/

http://www.educationoasis.com/curriculum/graphic_organizers.htm

http://www.enchantedlearning.com/graphicorganizers/

Source: Gregory, G. & Chapman, C. (2007). Differentiated instructional strategies: One size doesn't fit all (2nd ed.). Thousand Oaks, CA: Corwin Press.

26. Homework Checkers

This is a process for checking homework simultaneously in the classroom allowing the teacher an opportunity to differentiate homework to address individual student learning needs.

Process:

- The teacher checks to see that each student has completed the assigned work.
- Students who have not completed the homework work in a designated area of the room. The teacher moves about to provide guidance.
- Students who completed the homework work in groups of 3 or 4 to check all sets of homework for agreement/disagreement on the answers.
- All students mark each answer for agreement /disagreement as well as explanations as why an answer is incorrect and how to make it correct.
- All students sign their names indicating agreement. They staple their homework together and hand in to the teacher.
- The teacher spot checks the homework submitted.
- The teacher puts a check mark next to each student's name indicating that the homework was completed.
- The teacher keeps a tally of the homework completed each week.

An example of a homework checker can be found on the next page.

Source: www.fivejs.com

Weekly Assignment Sheet

Week of _____

SUBJECT & ASSIGNMENT	WKLY FREQ	MONDAY	✔ ■	TUESDAY	✔ ■	WEDNESDAY	✔ ■	THURSDAY	✔ ■	FRIDAY	✔ ■

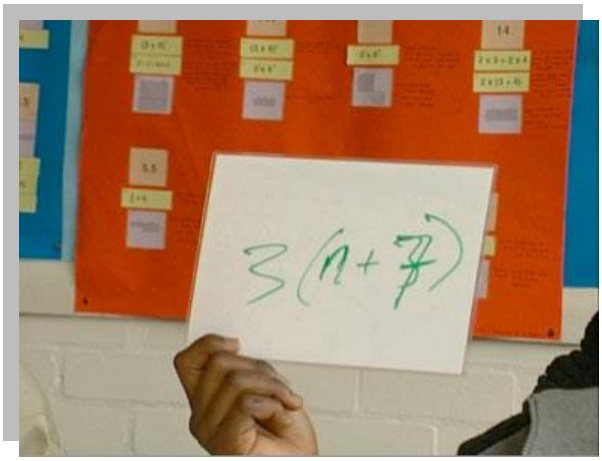
KEY ✔ scheduled | ■ completed

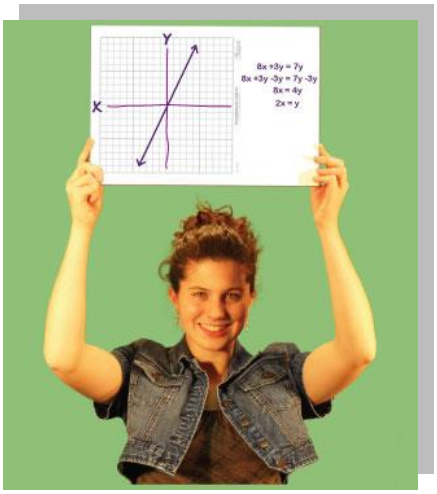
27. Individual Response Boards

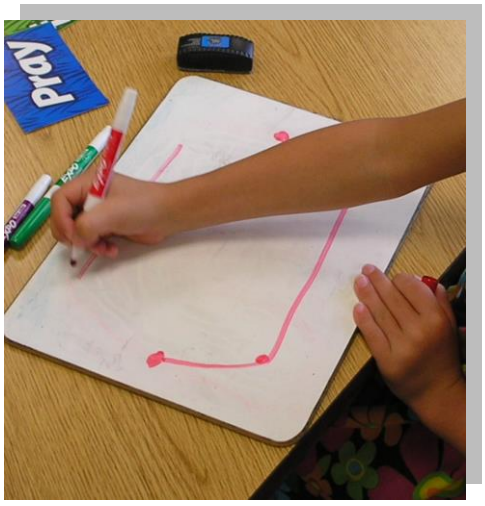
Individual slates or whiteboards are a way to actively involve students in the class and encourage them to be more accountable for their learning. They are helpful formative assessment tools which provide teachers with immediate information about students' progress.

Process:

- Students answer the question posed and hold their whiteboard up.
- The teacher can quickly determine who understands and who needs help.
- The teacher can adjust his/her instruction accordingly.





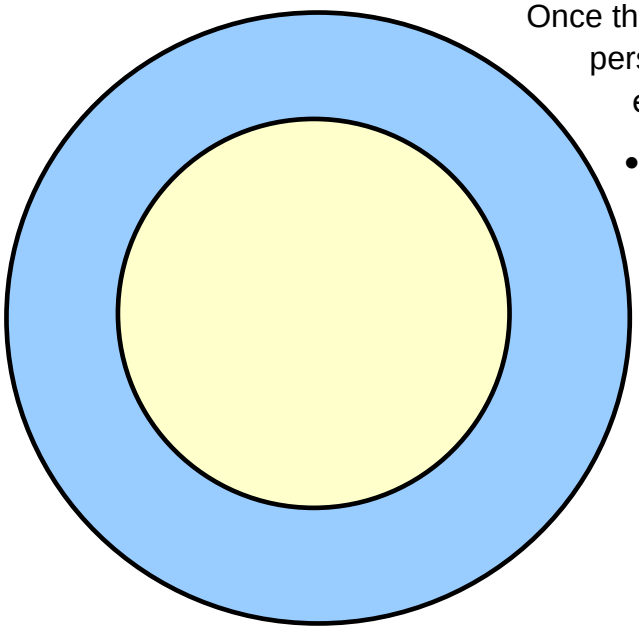


28. Inside-Outside Circle

This strategy encourages community building among students while incorporating movement and interaction.

Process:

- In this activity students are divided into two groups. One group (min. 3 students) forms an inside circle and the second group forms a circle around them (the outside circle). The student in the outer circle and the students in the inner circle face each other. The strategy is used to encourage discussion between the students.
- The teacher poses a question or suggests a topic, which the students are to discuss, brainstorm about, etc.
- Students think about how they will respond to the question or topic. The person on the inside of the circle tells the person on the outside of the circle their response. Once they finish sharing they say “Pass”. Then the person on the outside shares their ideas, or extends the inside person’s comments.



- Then (at the teacher’s direction) the outside circle rotates one position to the left or right. In this way the students will have a new person with whom to discuss the same (or a different) question.

Source: Bennett, B., & Rolheiser, C. (2001). Beyond Monet: The Artful Science of Instructional Integration. Toronto, Ontario: Bookation

29. Interactive Bookmark

The Interactive Bookmark is a note-taking tool for students to use as they independently read or navigate texts. Designed to help students stop and process at different points throughout their reading or viewing, the Interactive Bookmark is an open-ended activity that includes both linguistic and nonlinguistic elements.

The bookmark invites readers at different levels of proficiency to choose the way they respond to a text. It can also be used as a practice tool for students to become strategic readers.

Process:

- Introduce the activity by modeling it.
- Provide students with copies of the Interactive Bookmark (have these precut or ask students to cut out their own).
- Read aloud or have students read quietly to themselves. Stop at key points in the text (e.g., the middle of a heated dialogue or the end of an extended description), or stop at various points throughout a video.
- At each stopping point, ask students to respond to the prompts on their bookmarks.
- Share several student responses with the whole class.

An example of an Interactive Bookmark can be found on the next page.

Interactive Bookmark

TITLE

STOP Point #1

STOP Point #2

STOP Point #3

STOP Point #4

NOTES:

Source: Dodge, Judith. (2005). Differentiation in Action. Scholastic, Inc..

30. Jeopardy

This is an interactive strategy that can be used to improve student engagement.

Process:

- Divide the chalkboard or dry erase board into a grid, or use a smart board it to make the game more interactive. Write a category title---for example, Mathematics, Science, Social Studies"---in the first box of each column. Fill in the rest of the column with point values in ascending order.
- Prepare as many questions and corresponding answers as there are boxes on the grid. Harder questions should be worth more points. Put an asterisk next to two questions that will be used for the special Daily Double.
- Divide the class into teams. Determine the order in which members of each team will go up to answer questions. Flip a coin to determine which team will get the chance to answer the first question. Make sure each team can see and read the board/smart board clearly.

- Ask the first member of the chosen team to select a point value from any category. Read aloud the answer corresponding to the question. The student will need to provide a response in the form of a question: for example: “What is photosynthesis?”
- Give other teams a chance to answer if the first student cannot provide the correct response. If using the chalkboard, put an "X" through the corresponding box on the grid once the question has been answered. If using the smart board, the online version is set up to remove the question from the screen.
- As each time a team answers correctly, write the number of points earned under the team name.
- Ask students to wager all or part of their current score on a question when they select either of the questions marked for the Daily Double. Once they indicate the wager amount, read the question. Add or deduct the number of points wagered depending on whether the team answers correctly or not.
- Continue to play Jeopardy until all boxes have been eliminated from the grid.

Note: Jeopardy templates for use with the smart board can be found through any search engine. It is best to look at the ones available online to see which version best suits your classroom needs.

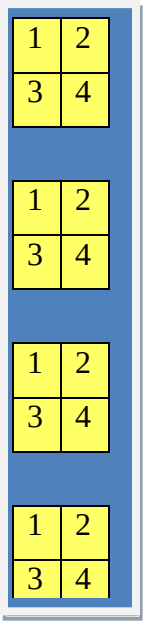
31. Jigsaw

Jigsaw is a cooperative learning activity that can be used in any content area and with any grade level.

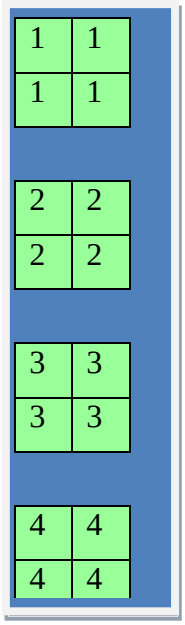
Process:

- Choose an article to read or a concept to study. Break the activity into 4 sections.
- Have students break into base or home groups of 4 students.
- Ask students in each group to count off from 1-4.
- Then have students with the number 4 meet with the other number 4s, number 3s meet with the other number 3s, 2s with other 2s and 1s with 1s to form expert groups.
- These individual numbered groups will become the expert groups.

Base Groups



Expert Groups



- The job of the expert group is to study their assigned area of the content together, discuss their group understanding of the topic and prepare some brief notes.
- Then base/home groups get back together so that each member can teach his/her content to other group members.

- Number 1 member will report what he/she learned, then number 2 explains his/her section, then number 3 and so on.

This process fosters shared responsibility for learning. When students return to their base groups, those students for whom the content is a challenge will not only have the chance to participate in the group discussion but will benefit from the dialogue with the more advanced learners in the group. Having the support of the expert group will better prepare struggling members with the key points to share with his/her home/base group.

Source: Gregory, G. & Chapman, C. (2007). Differentiated instructional strategies: One size doesn't fit all (2nd ed.). Thousand Oaks, CA: Corwin Press.

32. K-W-L Chart

This method can be used to introduce a topic, or pre assess students' prior knowledge, etc. This can be used as a whole class activity (i.e., with the teacher or assigned student recording what the students volunteer in a chart on the board) or individually as students complete the chart themselves. Teachers may draw the following chart on the board, have students create the chart in their notebooks, or print for students to use.

What I ***WANT*** to know (or wonder) about the topic	What I already ***KNOW*** about the topic	What I ***LEARNED*** about the topic

Process:

- To activate students' prior knowledge, begin by asking them what they already **Know** about the topic and list it in the appropriate column. This can be followed by having students share what they Know with the class or with a partner.
- To create interest or anticipation in the new topic, have them identify questions they have on the topic, items they would like clarified, etc. (i.e., **Want** to know)
- After the topic has been discussed/completed, students return to the chart and record what they have **Learned** and compare this with the other two columns; did they learn anything new? Were their questions answered?

A modification to **K-W-L is the B-K-W-L-Q** which follows the same steps and is used to help build background knowledge of the topic. Two steps are added to the activity. **B** is for building background knowledge. **Q** is for new questions after the initial reading and prior to further reading.

- The teacher reads a selection to students related to the topic, shows a short video, or leads a quick discussion on the topic. This provides students with some background knowledge related to the topic and will help ensure every student can list something in the **K** column. In the **B** column, students describe or draw something about the topic.
- Students list new questions **(Q)** they have concerning the topic after the initial introduction and prior to studying the topic.
- Students then use the K-W-L activity as outlined above.

Source: Gregory, G. & Chapman, C. (2007). Differentiated instructional strategies: One size doesn't fit all (2nd ed.). Thousand Oaks, CA: Corwin Press.

33. List, Sort, and Label

This activity is very useful for introducing a topic in order to assess prior knowledge or summarize near the completion of instruction. It can be very easily tiered to meet the needs of a variety of learners. This is also known as a bucketing activity.

Process:

- A pack of index cards or slips of paper is used to create terms related to a specific topic.
- Small groups of students sort through the cards or paper and put the terms into categories.
- The small group creates a title for the overall topic as well as the sub categories.
- The list of term, images, etc. can be teacher generated if it is used at the beginning of the study of a particular topic or student generated by maintaining a list of terminology encountered during a period of study on a topic.

The difficulty level of list, sort and label can be adjusted by providing labels to students who struggle or allowing more freewheeling and open-ended debate among a group of more able learners who can explore the nuances and interconnection of the terms. The process of interacting, finding connections and justifying choices is at the heart of this activity. The logic employed and the interaction between students is invaluable. The result of separating out into piles is secondary.

This could be useful in a study of a civilization or time period with words relating to geography, religious beliefs, key figures, products and trade, governance, cause and effect events, etc. all needing to be evaluated and sorted. It could be used with foreign language vocabulary words which might lend themselves to sorting by gender, number, pronunciation patterns, meaning, etymology, etc. The benefit is in the consideration of the word and characteristics just as much as in following whatever sorting system the students ultimately agree to adopt.

Source: LeAnn Nickelson: Staff Development for Educators (SDE) Training Session, Columbus, Ohio, 2010

34. I Have/Who Has/Loops

This strategy, also called Loops, has long been used in the teaching of Mathematics. It has now been extended to other subject areas. It involves the whole class and is used to review or assess listening skills and knowledge of a particular topic or skill. A loop game is constructed so that the sequence ensures that all questions and answers must be used. In a loop game the sequence always arrives back at the first question.

Process:

- A set of cards are created which create a loop of questions and answers.
- Each card has an answer at the top and a question on the bottom. The answer and the question do not match.
- Students may receive one card each or pairs of students may share a card if such support is deemed more suitable according to the teacher's knowledge of the students and/or their familiarity with the topic.
- One student (or pair) is chosen to start. He or she would read their question aloud – Who has…? The students or students holding the card which has the answer to the question posed would read their solution aloud. We have…If the group agrees that the answer is correct, the same student would then continue by reading the question on the top of his/her card.
- The cycle continues until the question sequence leads back to the answer written on the top of the card held by the originating students.

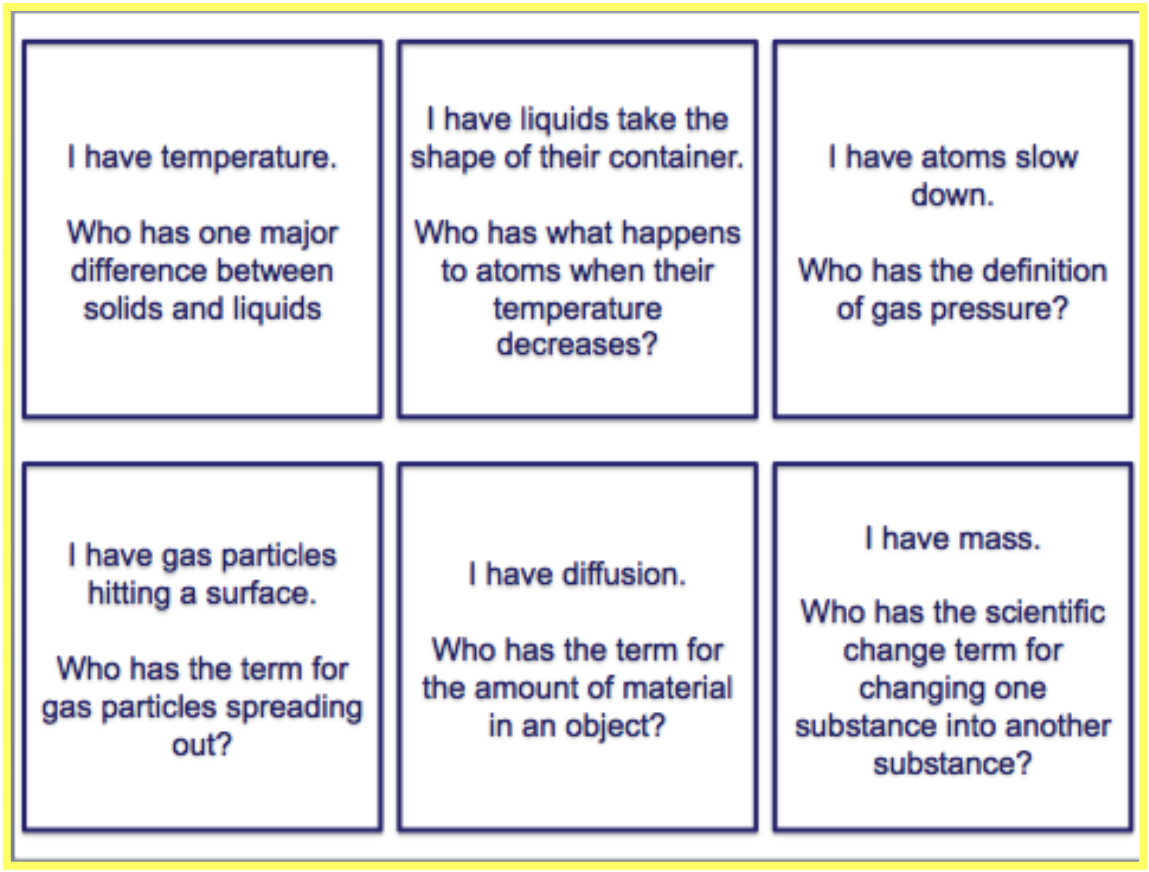
These are very effective as a review technique with factual information or simple mental procedures. It can support students by pairing them so no individual faces the anxiety of being alone and unsure. It allows for oral discussion in the group and interpersonal interaction which appeals to many learners.

Depending on the topic or the makeup of the group, there may be one large class "I have/Who has" loop, or several small groups working with the same or differing loops at the same time or changing the loops in a manner similar to rotating stations.

High school teachers in Newfoundland and Labrador have employed loops for many subject areas including character attributes for Shakespearean plays, characteristics of geometric figures, steps in an artistic process, terminology in geography, etc.

An example of <u>I Have/Who Has Loop</u> can be found on the next page.

Science example: (Partial Loop – excerpt only)



Examples of algebra I have/Who has Loop are available at:
http://www.mathwire.com/whohas/whalgA.pdf

Loop Writer Software can be purchased at
http://www.curriculumproject.com/loopwriter/

Source: Source: Hollas, B. (2007). Differentiating Instruction in a Whole-Group Setting. Crystal Springs Books. New Hampshire

35. Menu Boards

A menu board offers students a way to make decisions about what they will do in order to meet class requirements. It could be for a single lesson, a week-long lesson or even a unit of work.

Process

- Identify the most important elements of a lesson or unit.
- Create a required assignment (Main dish) that reflects the minimum understanding you expect all students to achieve.
- Create negotiable assignments which expand upon the main dish or required assignment/project. These negotiable assignments often require students to go beyond the basic levels of Bloom's Taxonomy. For example, they often include activities that require synthesis, analysis, or evaluation.
- Create a final optional section that offers students the opportunity for enrichment.

Examples of a Menu Board can be found on the next 2 pages.

Appetizer

- Write the chemical equation for photosynthesis.

Entrée (Select One)

- Draw a picture to show what happens during photosynthesis.
- Create a PowerPoint presentation to show what happens during photosynthesis.
- Create a rap or song that explains what happens during photosynthesis.

Side Dishes (Select Two)

- Define respiration, in writing.
- Compare photosynthesis to respiration using a Venn diagram.
- Write a journal entry from the point of view of a green plant.
- With a partner, create and perform a skit that shows the difference between photosynthesis and respiration.

Dessert (Optional)

- Create a quiz on photosynthesis.

Source: Adapted from: k8AccessCenter
http://www.k8accesscenter.org/training_resources/documents/15HourDifferentiationModule/Handouts/HO2DinerMenu.doc

Read to Self – Menu

Directions: Choose one appetizer, one main course and one dessert from the selections below. Write your responses in the next column.

Appetizers **Personality Poppers** Who is the main character? Write 5 descriptive words about the main character's personality. **Word Choice Wraps** Choose three examples of amazing word choice from the selection. Write the sentences in which the word is found and include the page number. **Setting Salad** Describe the setting and include the time place and circumstance. Include details from the book in your response.	**Appetizer**
Main Course **Summary Sandwich** Write a summary of chapters you have read. Include the characters, setting and main event. **Character Pot Pie** Make a Venn Diagram to compare and contrast two characters in your book. Include at least 3 bullet points in each section. **Visualizing Veggie Stew** What are you picturing in your head when you read this section? Sketch a picture on a separate piece of paper and label the important parts. Glue the picture in the main course box.	**Main Course**
Dessert **Prediction Pudding** After you finished reading a chapter, write about what you think is going to happen next? **Prequel/Sequel Sundae** When finished the book, write an idea for a sequel or a prequel. **Title Cake** Do you think the title "fits" the book? Why or why not?	**Dessert**

Source: http://3rd-grade-thoughts.blogspot.com/

36. Mind Maps®:

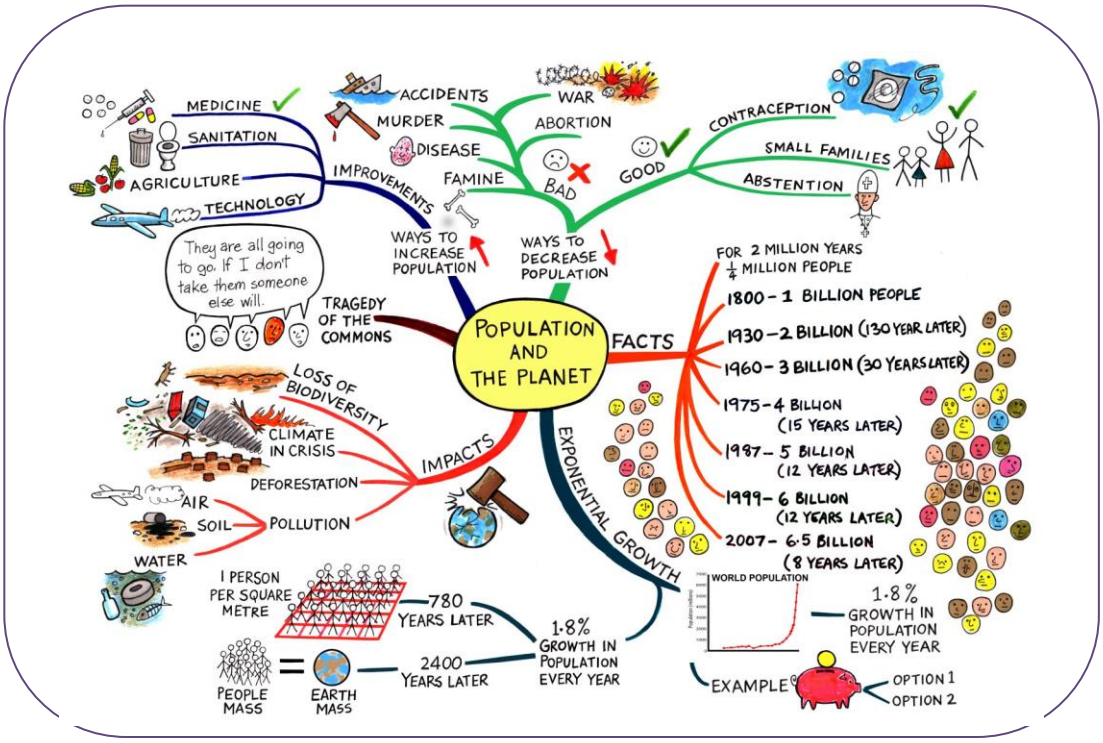
Mind Maps, developed by Tony Buzan, are an effective method of note-taking and summarizing information, as well as being useful for the generation of ideas by associations.

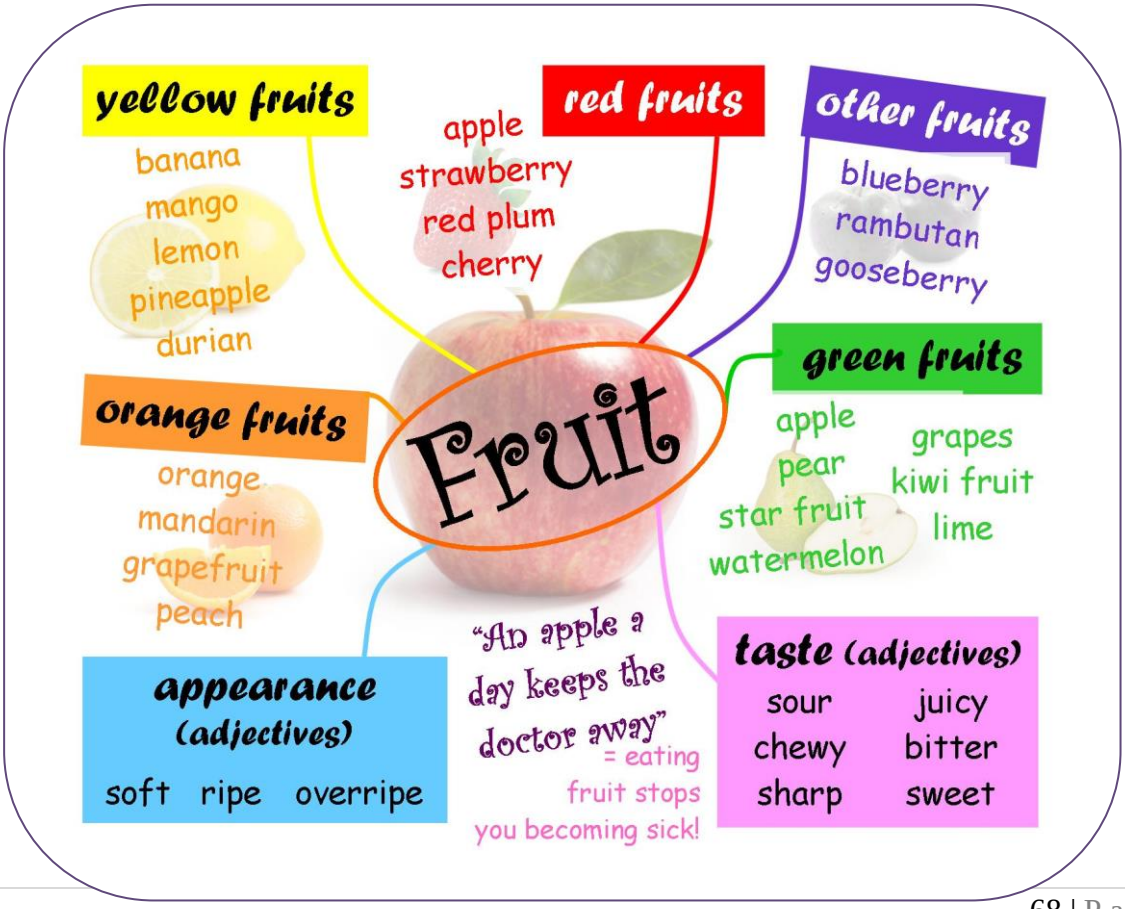
Process:

- Use letter sized paper or larger, oriented in the landscape position and follow the following steps (summarized from Tony Buzan's "How to Make a Mind Map" available at http://www.mind-mapping.co.uk/).
- Start in the centre. At a minimum, put the topic title in the centre of the page and draw a circle around it. If possible, create an image of the topic you are mapping (e.g. draw a globe if your information is about the earth; draw a river if your information is about rivers, etc.).
- The main points will be arranged on lines that radiate out from the central topic. Each line represents a key idea that will be further delineated. There is one line for each key idea and it is to be drawn freehand. Make these lines thick and curved.
- Use at least three colours for the lines and the associated text.
- Limit the textual component to single words or short phrases (maximum 3 words long).
- Using CAPITAL letters, PRINT the key point on these lines. This is the first level of information about the topic you are mapping.
- Add a second level of information to the key idea by adding lines to the key idea line. Add as many of these second-level lines as necessary to describe the key point. Remember, use only single words and at most, 2- or 3-word phrases. Subdivide these second-level lines further as necessary (i.e., make third- and forth-level lines) to explain or clarify the ideas/concepts.
- Second-level lines are thinner than the main idea lines. Continue to print the words but these do not need to be capitalized. You may want to bold, underline, or capitalize specific words for emphasis. Continue to add as many sub-level lines as necessary.
- Use images, sketches, or symbols as much as possible. The image should be meaningful to you and should convey information about the text (e.g., if the topic is "birthdays" you might include a sketch of a birthday cake or present; if the topic is "Holidays" you might sketch a Christmas Tree, etc.).

Examples of a Mind Map can be found on the next page.

Sources: http://www.mind-mapping.co.uk/make-mind-map.htm
http://www.peterussell.com/MindMaps/HowTo.php.


POPULATION AND THE PLANET
WAYS TO INCREASE POPULATION
MEDICINE
SANITATION
AGRICULTURE
TECHNOLOGY
IMPROVEMENTS
ACCIDENTS
MURDER
DISEASE
FAMINE
WAR
ABORTION
BAD
WAYS TO DECREASE POPULATION
GOOD
CONTRACEPTION
SMALL FAMILIES
ABSTENTION
They are all going to go. If I don't take them someone else will.
TRAGEDY OF THE COMMONS
FACTS
FOR 2 MILLION YEARS ¼ MILLION PEOPLE
1800 – 1 BILLION PEOPLE
1930 – 2 BILLION (130 YEAR LATER)
1960 – 3 BILLION (30 YEARS LATER)
1975 – 4 BILLION (15 YEARS LATER)
1987 – 5 BILLION (12 YEARS LATER)
1999 – 6 BILLION (12 YEARS LATER)
2007 – 6.5 BILLION (8 YEARS LATER)
IMPACTS
LOSS OF BIODIVERSITY
CLIMATE IN CRISIS
DEFORESTATION
AIR
SOIL
POLLUTION
WATER
EXPONENTIAL GROWTH
WORLD POPULATION
1.8% GROWTH IN POPULATION EVERY YEAR
EXAMPLE
OPTION 1
OPTION 2
1 PERSON PER SQUARE METRE
780 YEARS LATER
1.8% GROWTH IN POPULATION EVERY YEAR
PEOPLE MASS
=
EARTH MASS
2400 YEARS LATER


Fruit
yellow fruits
banana
mango
lemon
pineapple
durian
red fruits
apple
strawberry
red plum
cherry
other fruits
blueberry
rambutan
gooseberry
green fruits
apple
pear
star fruit
watermelon
grapes
kiwi fruit
lime
orange fruits
orange
mandarin
grapefruit
peach
appearance (adjectives)
soft ripe overripe
"An apple a day keeps the doctor away" = eating fruit stops you becoming sick!
taste (adjectives)
sour juicy
chewy bitter
sharp sweet

37. Mini Offices

A mini office is an individualized student work area. It is created using file folders and includes reference materials related to a subject area(s). It is intended to be portable and a quick reference for students.

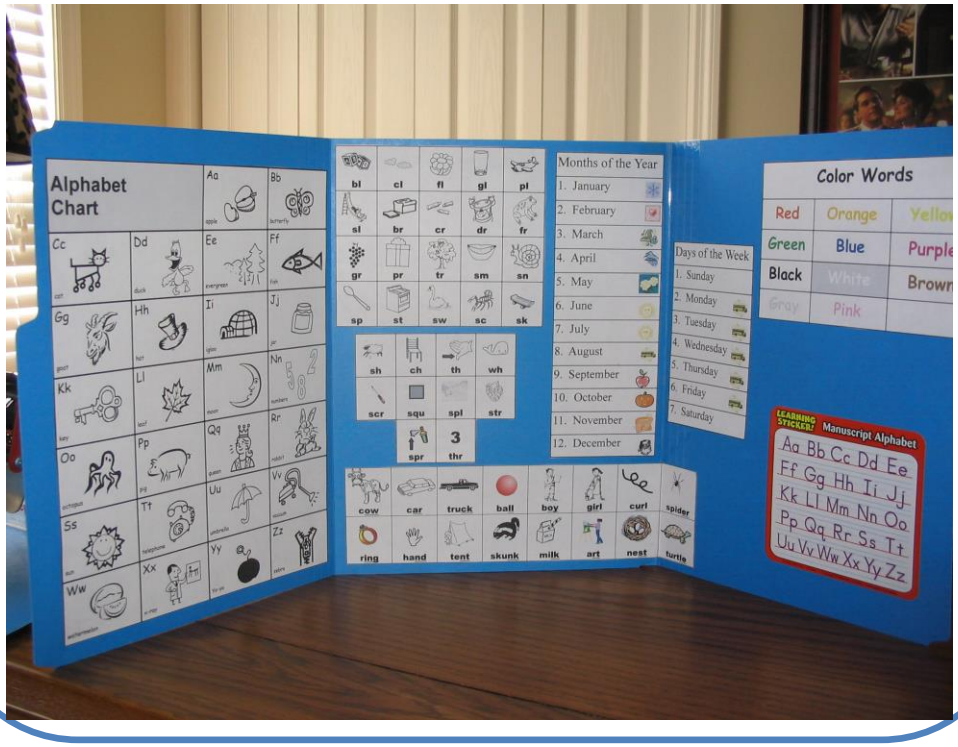
Examples of reference materials:

Science: periodic table or classification systems
Math: facts, 100s chart, formulae

Writing: proofreading chart, punctuation rules, rubrics

Process:

- Determine required reference material(s) (will vary from student to student)
- Form mini-office structure using file folders. Take two (or more) legal sized file folders and attach in such a manner that it can be folded flat for storage.
- Attach reference material as needed.
- Students can set up mini offices when they require a quiet space to focus on a topic.



38. Numbered Heads (Kagan, 1990)

Numbered Heads is a teaching strategy that holds each student accountable for learning the material.

Process:

- Teacher assigns students to a team of four.
- Each member of the team is assigned a number 1-4.
- Teacher poses a problem and gives think time.

- Students privately write their answers.
- Students stand up “put their heads together” showing answers, discussing, and teaching each other if needed.
- Teacher calls a number and each student with that number is required to give an answer.
- Classmates applaud students who provided answers.

Source: Kagan, Spencer & Kagan, Miguel. (2009). Kagan Cooperative Learning. San Clemente, CA: Kagan Publishing. www.KaganOnline.com.

39. One-Minute Commercial

This can be used as an after learning assessment strategy. It may be useful for the musical/rhythmic and/or kinesthetic learner. When first introducing this strategy, it will be useful for the class to discuss the purpose of a commercial and the various advertising strategies with which they may already be familiar.

Process

- Students are given a short period of time to create a one-minute commercial on a given topic.
- Using their bodies, students perform for the class to summarize their understanding of the topic just studied (i.e., global warming, French culture, a weather phenomenon).

40. P.L.A.N.

P.L.A.N. (Preview, Locate, Add, Note) is a four step active reading and study strategy that students can use before, during and after reading informational text to improve comprehension and retention.

Process:

- **Before reading**
  - Preview – Students survey the text by reading the titles and headings and look at any graphics. Skim the introduction and summary. Create a concept or Mind Map®. (See Mind Map® strategy on page 66 & 67).
  - Locate – On their concept maps, students place a check mark next to the topics and concepts they understand and a question mark next to the topics that are not as clear.
  - Students then research to find information about the topics that are not clear to them.
- **During reading**
  - Add – As students are reading, they will add information to the map to explain the topics. If they are not able to add any information, they may need to read the pertinent text again.
- **After reading**
  - Note – After students have completed their concept map they must summarize what they have learned. They can do this by writing summaries in their own words. Students can partner with a classmate to discuss their understanding of the topic.

Source: http://media.hcpss.org/newcode/strategies/strategies.php

41. Piggyback Song

In this strategy, the lyrics of a familiar song are rewritten to teach an idea or concept, while the original melody of the song is retained. This activity is great for hooking learners in any subject area and useful in accessing prior knowledge or gauging students' understanding of new knowledge.

Process

- In pairs or small groups, students choose a topic or work with a topic assigned to them.
- They select a song they know and change the original words to reflect their understanding of their chosen/assigned topic.
- Students share their piggyback songs with the class.

Example of a Piggyback Song

Do you know what shape this is? Tune: The Muffin Man

Do you know what shape this is?
What shape this is? What shape this is?
Do you know what shape this is?
I'm holding in my hand?

It is a circle, a circle.
A circle!
It is a circle!
That is the shape.

- Idea #1: Substitute different shapes in the song and hold the shape up.
- Idea #2: Hold different objects and have the students identify the shape.

Source: http://singanewsongmusic.blogspot.ca/2009/12/shapes.html

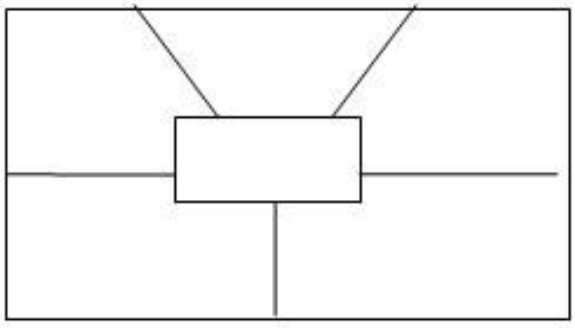
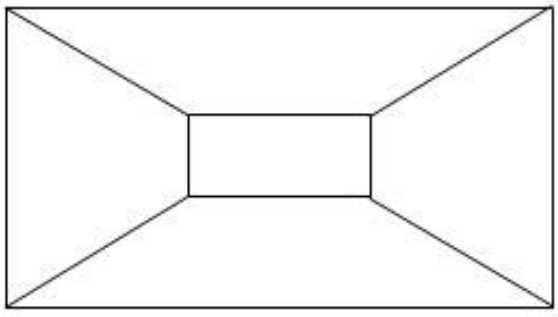
42. Placemat Activity

The Placemat Activity provides an opportunity for each student in a group to record individual responses and ideas regarding an issue, topic or question for consideration. The strategy can be used to brainstorm ideas, record researched information or analyze documents. Individual responses are shared with the group. After sharing and discussion, the group records agreed-upon response(s) in the centre of the placemat.

Process

- Divide the class into groups of four or five.
- Provide each group with one large sheet of paper/placemat and a marker for each group member.
- Instruct each group to divide its sheet of paper/placemat into sections, with an area in the centre and enough separate areas around the outside to match the number of members in the group, as illustrated below.
- Ask each member of the group to record individual responses within their allotted space in one of the outside sections.
- Provide time for each student in the group to share his or her recorded responses with the group without discussion or debate from the other students.
- Ask groups to decide, collectively, on the most important/significant item(s) or response(s) (may be more than one important or significant point) and record them in the centre of the placemat—it is important that all group members reach an consensus on the most significant item(s).

Sample Placemat Templates

Placemat for a five-member group	Placemat for a four-member group
	

Source: Learn Alberta http://www.learnalberta.ca/content/sssm/html/placematactivity_sm.html

43. Portfolios

A portfolio is a purposeful collection of student work that exhibits his/her efforts, progress, and achievements in one or more areas of the curriculum. The collection must include the following:

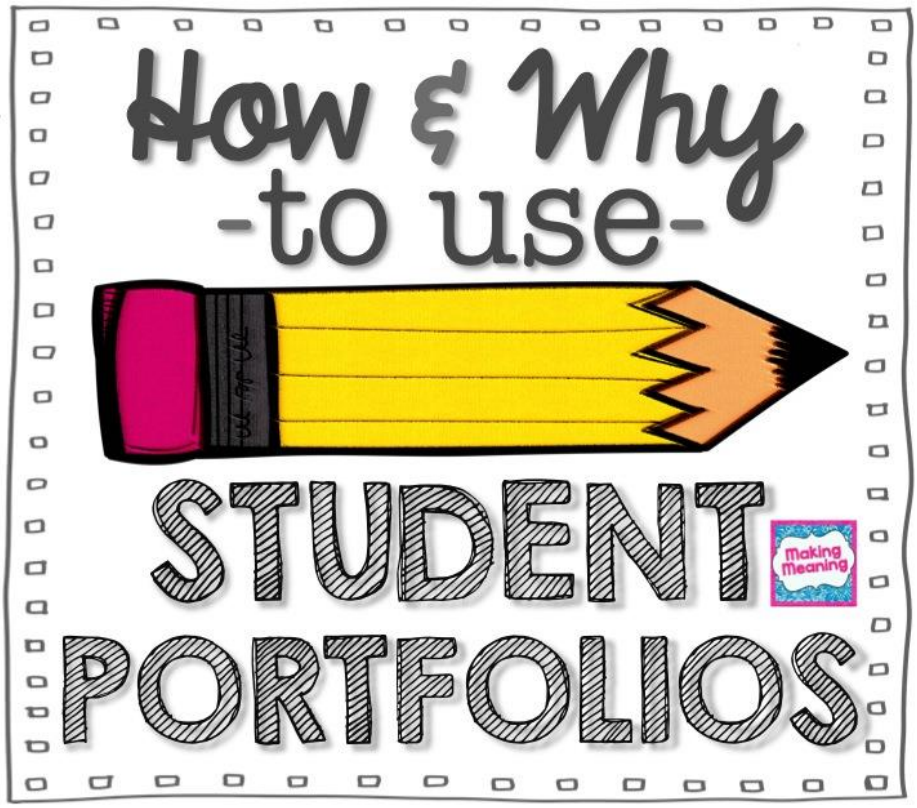
- Criteria for selection
- Criteria for judging merits
- Evidence of a student's self-reflection

There are a number of types of portfolios:

- **Documentation Portfolio:** This type is also known as the "working" portfolio. This approach involves a collection of work over time showing growth and improvement.
- **Process Portfolio:** This approach documents all facets or phases of the learning process. It includes students' reflection on the learning process and may include such things as reflective journals or think logs.
- **Showcase Portfolio:** This collection will include a student's very best work, determined through a combination of student and teacher selection(s). The showcase portfolio should also include written analysis and reflections by the student to explain why he/she chose to include particular pieces of work.
- **Electronic Portfolios:** These may be any of the types described above but created using digital technology. Audio and video links can be used to show students' understanding of concept or process. For example, students may record a science lab demonstration or a specific skill/set of skills in physical education. The electronic portfolio provides an opportunity to hyperlink to various examples of student work.

Process:

- Determine the purpose of your portfolio.
- Provide students with folders and place them in a common/accessible area of the classroom.
- Update contents regularly with student work/reflections and/or teacher feedback.
- Ensure students reflect on content regularly (the focus of student reflection will depend on the type of portfolio).
- Portfolios can follow students and be extended as they move through grade levels.



Source: http://www.pgcps.pg.k12.md.us/~elc/portfolio.html

44. QAR: Question-Relation Relationship

This strategy helps students understand that there is a relationship between a question, a text, and the background of the reader. QAR provides a four-part framework for helping students understand that questions about a text will be answered either by what is in the text or by what they already know through their own experience.

Process

- **Choose a text.** This strategy works well with both fiction and non-fiction.
- **Write questions based on the text**. Your questions should fall into 3 categories:
  - RIGHT THERE – The information that students will need to answer the question is right there in the text.
  - THINK, SEARCH and FIND – The information that students will need to answer the question is in the text but can be found in more than one place. The parts must be put together to answer the question.
  - IN MY HEAD – The answer is not in the text, but you still need information that the author has given you, combined with what you already know, in order to respond to this type of question.

    OR
  - ON MY OWN – The reader does not need to read the text in order to answer the question.
- **Go over the questions with the student before they begin reading the text.** Thinking about the questions while they are reading will provide students with a concrete purpose for reading.
- **After students have read, provide explicit instructions about the three categories mentioned above.** You might put the three categories on a wall chart or on a handout.
- **Ask students to answer the questions and indicate which category of information they needed to answer each.**
- **After the class is finished answering the questions and have indicated which category they used, discuss responses and categories as a group.** Some students may argue over which category was used but this discussion is important to the overall understanding of the topic.

Source: http://www.readingquest.org/strat/qar.html

45. Quick Draws

This strategy is useful as an assessment prior to or during learning. It can help identify "class experts" on a broad range of topics.

Process

- On a prompt from a teacher, each student quickly sketches what comes to mind about a given idea or subject. For example, a prompt might ask, "What comes to mind when you think about global warming?"
- Once the students have been given the topic, they begin to sketch.
- Students are encouraged to include as much detail as possible.
- Sketches may be shared with a shoulder partner or with the whole group.
- Students must be able to articulate the connection between the topic and the sketch.

46. Quiz-Quiz-Trade (Kagan, 1990)

This strategy is often used after several lessons have been covered or at the end of a topic or unit to review and reinforce what has been covered in class. However, the strategy can also be used for classbuilding, social skills, communication skills, knowledge building, procedure learning, processing information, and thinking skills.

Process:

- Questions and answers, based on the information from the lessons, are written on index cards or pieces of paper. You can write the question on one side of the card and the answer on the back side of the card. (Alternatively, students can create the cards).

- You need at least one card per student. It's good to have extras. Early on in a unit you may need to make duplicate cards to ensure each student has a card.

- This is a partner activity and requires students to move around the classroom. (The teacher or the students can decide which student will start first).

- To start the Quiz-Quiz Trade, hand out one card to each student, so that each student has a question and the answer. Then ask all students to stand up and partner with another student.

In each pair:

> ***QUIZ*:** Student #1 quizzes Student #2. Student #2 answers the question. Student #1 either praises or coaches.
>
> ***QUIZ*:** Then Student #2 quizzes Student #1.
>
> ***TRADE*:** After they both quiz each other with their questions, they switch/trade their questions and go on to pair up with someone else. This process is repeated a number of times and then students return to their places.

Source: Kagan, Spencer & Kagan, Miguel. (2009). *Kagan Cooperative Learning*. San Clemente, CA: Kagan Publishing. www.KaganOnline.com.

47. R.A.F.T.

R.A.F.T. is an acronym for **R**ole, **A**udience, **F**ormat and **T**opic. It can be used in any grade, for any subject. The R.A.F.T. format asks students to write from a viewpoint other than their own, to an audience other than the teacher, and in a format other than answering questions at the end of a chapter.

Process:

- After any subject or content area has been taught, the teacher can explain to the class that they need to be very creative and think of ways to write a response to what they have learned.

- As you introduce this strategy to your students, remember to have the class brainstorm possible audience, roles, formats and topics. Then, have students work individually or in pairs to create a R.A.F.T.

RAFT Examples				
Subject Area	**R (role)**	**A (audience)**	**F (format)**	**T (topic)**
Biology / Science	Heart	French fries	Complaint letter	Negative effects of fat in diet
Physical Education	The body	Director of school district	Newspaper article	Establishing more physical education time in schedules
Math	Fraction	Decimal	Love letter	Number comparison

Sample R.A.F.T. response for Biology example above:

Dear French Fries,

I am writing to give you a warning. You are killing me! You may not realize that one small serving of you contains more saturated fat than I can handle in an entire day. I've had it with your high sodium, fat, cholesterol and artery–clogging ways. Your value-meal family may be easy on the wallet but you are really costly to me.

Clean up your act!

The Heart

Source:

Differentiated Instruction Success: Theory Into Practice

Staff Development for Educators – Train the Train Institute 2009

Source: Hollas, Betty. *Differentiating Instruction in a Whole-Group Setting 7-12*. Peterborough, NH: Crystal Springs Books, 2007

48. Reciprocal Teaching

In this strategy, students and teachers discuss a text using the following four areas: predicting, question generating, clarifying, and summarizing.

Process:

- Each student in the class will take a turn assuming the “teacher” role and lead the discussion.
- To prepare for the discussion, students must read the text and prepare questions based on the four areas: predicting, question generating, clarifying, and summarizing.
- Some examples include:
    - Summarizing
        - What happened?
        - What is the outcome?
        - Who is involved?
        - What does the author want me to remember or learn from a particular passage?
    - Clarifying
        - What was confusing?
        - What words or phrases do you need more information on?
        - What ways can you increase your understanding?
    - Generating Questions
        - Questions of fact
        - Questions of interpretation
        - Questions that are open ended
    - Predicting
        - What will happen next?
        - Why do you think this will happen?
        - What effects will the events have on the character?

Combining these four areas will help students explore a text in a variety of ways. Student participation and engagement is fostered as students take responsibility for leading class discussions.

Source: http://media.hcpss.org/newcode/strategies/strategies.php

49. Scrabble (Interactive)

This is an interactive activity used to promote movement and encourage team building.

Process:

- Assign students to teams.
- Explain the rules and demonstrate how the game works (run to the letters and back etc.).
- Facilitator first selects the letters that make up a "starting point" word such as **biology** and places at front of room. The base word is the same for each team. Players stand by this word.
- Place other letters at opposite end of the room and far enough away for running. Turn letters over so no one can see them. One pile of letters per team.
- Participants line up in two's. When game begins, pairs from each team must run to the group of overturned letters and **each** pick up one letter. They run back to the "starting word" and place the letters face-up and try to make a word. Words must be placed in a regular scrabble format (i.e., words cannot run into each other that do not make sense) and must be related to the topic being taught.

- **As soon as letters are placed,** the next two players from each team run to the overturned letters and select two more. This process is continuous **(two players are always running)** until the facilitator says **Stop!**
- Make as many words related to the topic as possible in the 15 minutes. To add up the points, first count every tile used. Then, for every word related to the topic with up to four letters, add 50 extra points. For every word with 5 or more letters, add an extra 100 points.
- The team with the most points is the winner.

50. Search and Sign

A search and sign is a strategy that can be used to:

- activate prior knowledge
- review content
- review vocabulary
- review math skills
- get to know students/peers

Process

- The teacher creates a template (9 blocks or larger) and places a question in each block that he/she would like the students to answer.
- Each student is given a copy.
- Students walk around the room and find someone who can respond to one of the questions in the template.
- After providing a verbal response to the question, the person answering the question puts their initials in the square. Notes can be made in the square if you want to record the person's answer. (The teacher should decide up front if answers are to be recorded.)
- A person can only answer and initial one square on any individual card. However, he or she may provide responses to other students. No student may sign his or her own card.
- Once the activity is completed, the teacher may collect the sheets to review at another time, or there may be whole class review at the end of the activity.

An example of a Search and Sign can be found on the next page.

Sample Search and Sign- Grade 6 Math - Number Relationships

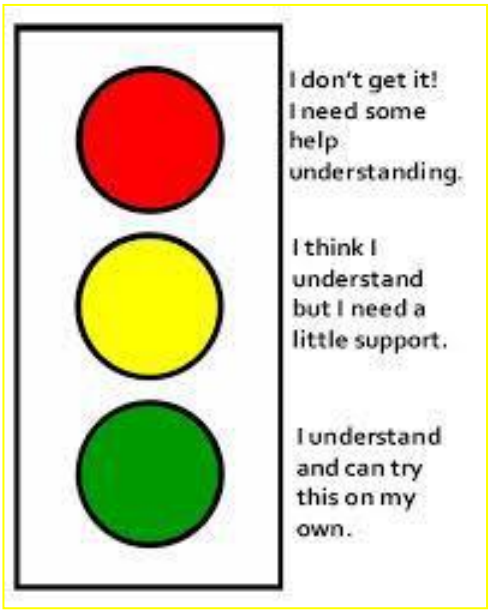
List all the factors of the number 40.	**List two prime numbers.**	**Define the term *composite number*.**
List the prime numbers from 51 to 100.	**What integers are between -2 and -5?**	**What integers are between - 4 and + 3?**
List the rules for <u>order of operations.</u>	**What is the correct answer to this equation? (12+8) ÷ 2 + 7**	**Define the term *opposite integers.***

51. Signal Cards

Provide students with cards to visually signal their understanding of concepts or directions. Other items, besides cards, may be used such as red, yellow and green cups, Popsicle sticks, crayons, etc. Coloured items used may have a message written on it.

Process

- When using signal cards, a good place to start is with the colours red, green and yellow which have universal meaning:
  - Red = Stop
  - Yellow = Caution
  - Green = Go



- Individual students can monitor their own learning by showing:
  - Red: Stop – I'm lost!
  - Yellow: Slow down, I'm confused.
  - Green: Full steam ahead!

- Groups can signal:
  - Red: We're lost!
  - Yellow: When you have a moment we'd like some help.
  - Green: We are working together productively.

Additional Applications for Signal Cards

Individual two-sided cards or dry erase boards may be used to show students' understanding. For example, true/false, yes/no or agree/disagree may be written on each side of a card/individual whiteboard. Students respond to various questions or statements by showing the side of the card which they deem most appropriate.

52. Small Group Learning Strategies:

Research has shown that students retain more information when they have the opportunity to work in groups and to "teach" each other. Below is a list of various small group strategies that teachers can use to promote student engagement and interaction.

I. **Learning centres** or **stations:** A learning center is a self-contained section of the classroom in which students engage in independent and self-directed learning activities. This structure allows students to work on specific tasks designed to target a concept or skill. The amount of time spent, tasks completed and degree of choice can vary for each group of students.

II. **Round robin brainstorming:** This structure has the class divided into small groups with one person appointed as the recorder. An open-ended question is posed and students are given time to think about answers individually. Then members of the group share responses with one another, going around the circle, one after another. The recorder writes down the answers of the group members.

III. **Pass a problem**: In this structure, the teacher divides the class into small teams and creates one problem for teams to solve. The problem is written on the outside of an envelope and each team is given an envelope. Teams read the problem, place their solution in the envelope. Teams then switch their envelope with another team to check their solution(s).

IV. **Send a problem**: In this structure, the class is divided into small groups or teams. Each student is responsible for writing one problem or question on a card. Group/team members attempt to solve one problem at a time. Once the problem is solved the original problem/question writer determines if they have come up with a good solution.

V. **Three stay, one stray**: In this structure the class is divided into small groups of four. Each team is given the same problem/question to discuss. Three group members work together to solve the problem or answer the question, while the fourth group member "strays" to other groups to compare and discuss their ideas. The fourth member brings back to the home group the ideas heard from other teams.

Source: Government of Alberta, Ministry of Education
http://education.alberta.ca/media/1233989/8_ch5%20learning.pdf

53. Snowball Toss

This activity involves movement and engages students. It can be used for reviewing, predicting, summarizing or pre-assessment.

Process:

- Ask students to write their name on a piece of paper and to write something or draw an image demonstrating what they already know about an upcoming topic, for example the “animal cell”. Encourage students to write clearly.
- Have students bring their papers and form a large circle.
- Tell students to crumple their paper to make a ball. On signal, students will throw their papers into the center of the circle using an under hand throw. Then grab someone else’s “snowball” from the pile and throw it in the center.

- Continue this “snowball toss” for a minute or so until students are signaled to stop. Have students choose a “snowball” and unfold the paper.
- Go around the circle and have students read what is written. If the group is large, you may want to form 2 circle groups.
- Collect all “snowball” for assessment purposes.

Note: Teachers may also consider completing this activity anonymously to support risk taking and to encourage more honest answers.

Source: writingfix.com/RICA/Summarizing/Snowball_Notes.htm

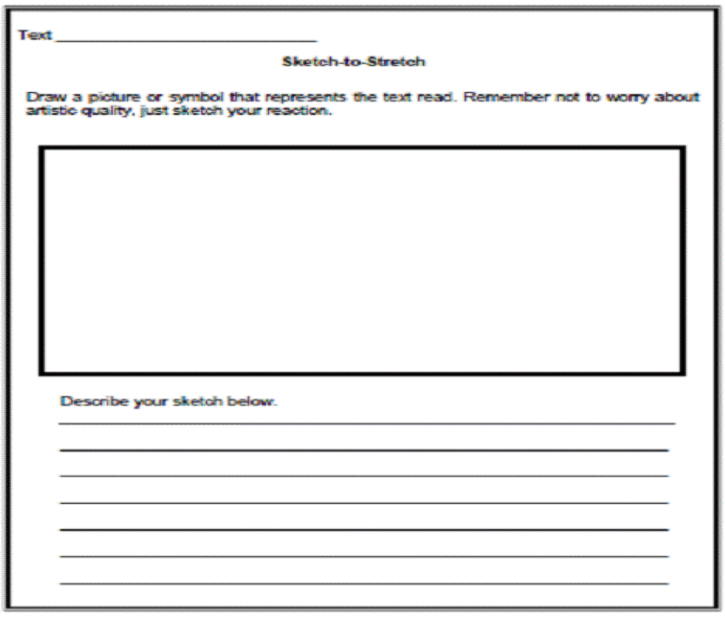
54. Sketch to Stretch

In this strategy, students draw pictures that represent their understanding of a topic, text, or video and share their illustrations with a small group.

Process:

- Place students in groups of four or five.
- Have students think about what they have read or viewed.
- Have students draw individual sketches depicting what the selection meant to him or her.
- Tell students to focus on interpretation not artistic talent.
- When sketches are completed, each student shares their sketch with the other members of the group. They do not give any oral hints or phrases. Allow the members of the group to interpret what the sketch is depicting. Once the other members are finished with their interpretation, the artist explains the meaning of his/her sketch.
- Continue sharing around the group until all members have shared.
- To extend this activity, have each group choose one sketch to share with the larger group.

Sketch to Stretch Template:
*www.readwritethink.org/files/resources/lesson_images/.../**sketch**.pdf*


Text _____

Sketch-to-Stretch

Draw a picture or symbol that represents the text read. Remember not to worry about artistic quality, just sketch your reaction.

Describe your sketch below.

Source: http://media.hcpss.org/newcode/strategies/strategies.php

55. Tableaux

This strategy is a form of dramatization in which groups research and create a single "frozen" picture as a way of summarizing some situation, event, or concept that they have studied (e.g., several students freeze into stages of the plant life cycle or life cycle of the butterfly, a scene from a play, novel, or story, natural disasters)

Process

- The teacher assigns topics related to the area of study. This may be just a word or situation or may be inspired by a photo, work of art, etc.
- Groups of three to five students create a frozen picture or visual using their bodies to show their understanding of a topic (e.g., World War II).
- This may be extended by asking each member of the tableaux to share his or her role in the larger scene.

56. Talk with F.R.E.D. – Facts, Reflections, Evaluation, Decisions

This is a useful activity to get your students to higher level thinking in an individualized activity.

Process:

- Before students read a text, watch a video or participate in discussion, write a list of questions that you want to ask the class. Base your question on the F.R.E.D. guidelines. Be sure to adapt the questions to the subject and the group of students.

F.R.E.D. Guidelines

Facts: These are questions that explore what your students have seen, heard, or experience in other ways. (e.g. What facts do you remember? What scenes or images do you remember?)

Reflections: These are questions that draw on your students' emotions by finding out how they feel. (e.g. What was your first response to the scene?)

Evaluation: These questions invite your students to make meaning. (e.g. What was the most interesting part for you?)

Decisions: These questions help students with decisions. (e.g. What would you say about this text or video to someone who has not read or seen it?)

- After the class reads the text or watches the video, present your questions. Following the F.R.E.D. guidelines, spend three to four minutes with each group of questioning.
- Encourage students to elaborate on their answers by giving specific examples.

Source: Hollas, Betty. *Differentiating Instruction in a Whole-Group Setting 7-12*. Peterborough, NH: Crystal Springs Books, 2007

57. Tea Party (Mix and Mingle)

This is a useful strategy to introduce a new topic by sharing interesting tidbits to pique student interest. It also allows for movement during learning, oral interaction and interpersonal contact, thus appealing to several learning preferences.

Process:

- Each student has a small information card relating to the topic under consideration.
- The students are asked to mill about with their classmates, as if they were at a party, sharing the information provided on their cards while gathering additional information during their interaction with other students.
- Students are encouraged to keep moving through the group so that they gather a large portion of the data during their interactions.

The information cards may be teacher generated or student created as long as the information has been verified as accurate.

The use of music is suggested both to set the atmosphere and to serve as a cue to finish up the activity.

Source: spedlit.k12.hi.us/Strategies/TEA%20PARTY.htm

58. Text Marking

This strategy helps students focus and think while they are reading.

Process:

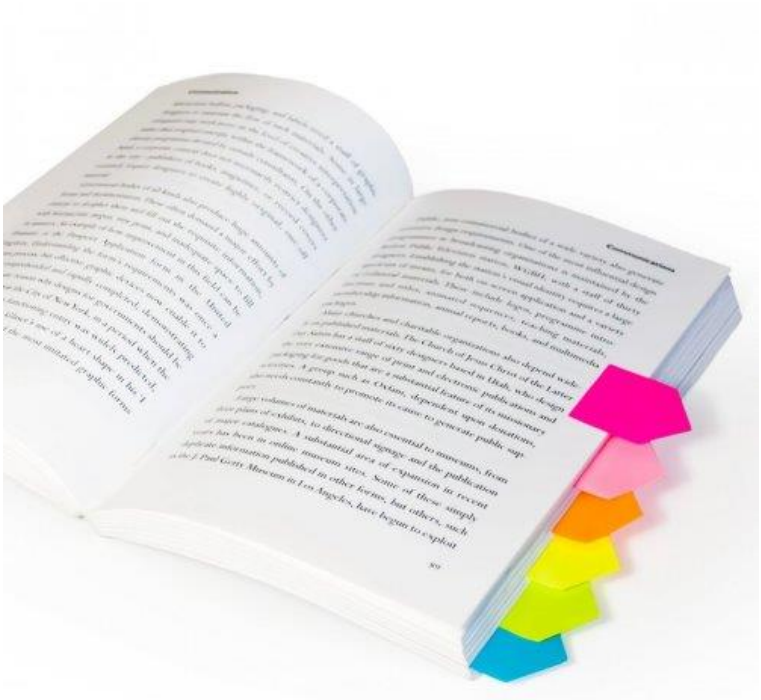
- Have each student take a few sticky notes. Explain to the students that whenever, they read or hear a part that reminds them of something that has happened to them, put a sticky note near it on the page with an arrow pointing to the relevant section.
- When the reading is completed, ask them to pick ONE place where they put a sticky note and turn to their neighbor to share why that part of the story reminded them of their own experience.

This works well with other criteria as well. Students may be asked to indicate the parts of the text which raise questions, a part that is very interesting, or a part they feel is very important. As students become more proficient with this type of text marking, the teacher can introduce signs to use. These might include:

! "This is interesting."

? "I am confused." or,

***** "I already know this."



59. Textbook Page

This is a useful tool to help a teacher determine a student's level of understanding of a given topic. It is a great study tool for students when preparing for summative assessments.

Process:

- Give each student a copy of the textbook page template.
- A new template page should be given to students once the topic changes.
- These pages should be assigned after the class has explored an important concept.
- Model how to complete a sample textbook page. Ask students for help in creating the main ideas.
- Allow students to work together on their first textbook page. They share ideas, but each creates their own page.
- Have students complete the page for homework or continue working on it the next day.
- Collect the pages you assign as homework. Review and provide feedback to students
- Encourage students to keep all completed textbook pages in a three ring binder or duo tang.

Textbook pages can be used for any subjects including math. All that would need to change would be the heading in each box.

An example of a textbook page template is available on the next page.

Source: Judith Dodge (2009): 25 Quick Formative Assessments for a Differentiated Classroom. Scholastic Books. Toronto

Social Studies Textbook Page

Name: _____ Date: _____

Concept/Topic: _____

Description/Summary of Topic:	Key Vocabulary Terms:
Important Historical People and their Contributions:	Historical Developments/Key Events:
Geography/Economy:	Achievements:

60. Think-Tac-Toe (Choice Boards)

Think-Tac-Toe is a strategy to give students alternative ways of exploring and expressing key ideas and using key skills to demonstrate their understanding.

Process

- Identify the outcomes and focus of a unit of study.
- Use assessment data and student profiles to determine student readiness, interest and learning styles.
- Create a nine cell Think-Tac-Toe template/board, like that of the game Tic-Tac-Toe.
- Design nine different tasks in varying modalities and/or at varying levels of complexity and place each in a cell on the Think-Tac-Toe template. Ensure the placement you choose allows the students to make choices that will include a variety of types of activities.
- Give each student a copy of the template.
- Have students choose three activities which forms a line across, down or diagonally.
- Students can work in groups or alone.

Adaptations

- The template or board can be set up in various ways:
    - The first line contains simple projects; the middle line requires a little more thought; the bottom line requires more time and effort to complete. Students can pick projects so that they score a Think - Tac - Toe vertically or diagonally.
    - Create choice boards based on Bloom's Taxonomy.
    - Create choice boards based on multiple intelligences.
- Allow the students to choose any three activities even if the completed tasks do not make a straight line.
- Make the middle square mandatory for all students.

An example of a Think-Tac-Toe can be found on the next page.

Sample Think-Tac-Toe: Heredity and Genetics

Summarize… facts or ideas which are important in determining genetics	**Classify…** dominant and recessive traits as they relate to Mendel's Pea Plants	**Draw…** Mitosis and Meiosis
Predict… what a person might look like using the Punnett square	**Create…** a unit test on the outcomes covered in this unit of work	**Show…** a model of DNA strand with a key
Survey… using your classmates- hair colour, eye colour – graph your findings in a chart of your choice (pie, bar, line, etc.)	**Interview…** a person whose career or hobby deals with genetics/reproduction	**Judge…** 3 websites on their effectiveness in explaining genetics and heredity

Sources: Hollas, Betty. *Differentiating Instruction in a Whole-Group Setting 7-12*. Peterborough, NH: Crystal Springs Books, 2007
www1.cbsd.org/sites/teachers/.../Choice%20Boards%20Packet.pdf

61. Three Facts & a Fib

This is a type of summative assessment that allows students to engage in higher level thinking than required for \traditional fill in the blank questions.

Process:

- Ask each student to write four statements about the content of the unit studied in class. Three of the statements should be true and one should be false.

- Students move around the room, sharing their list with their classmates.
- Each student should ask their fellow students to pick the false statement.
- Record the name of the students that could not pick the false statement.

Example of Three Facts & a Fib: Cell Theory

1. All matter is composed of cells.
2. Cells carry on functions to sustain life.
3. Extracting energy from food is one of the functions of a cell.
4. Cells come from living things.

Source: Hollas, Betty. D*ifferentiating instruction in a whole-group setting: taking the easy first steps into differentiation*. Peterborough, NH: Crystal Springs Books, 2007.

62. WebQuests

A WebQuest is an inquiry-oriented online tool for learning. It is a classroom-based lesson in which most or all of the information that students explore and evaluate comes from the World Wide Web. They can be as short as a single class period or as long as a unit. Webquests usually involve group work, with students taking on specific roles or perspectives and are built around resources that are preselected by the teacher. Students spend their time USING information, not LOOKING for it.

WebQuests are not designed to teach raw facts, simple procedures or definitions. They are useful in obtaining multiple points of view, weighing reliability of data sources, and critical thinking and analysis skills. When tiered by sending students to different websites or resources according to ability, readiness or interest, they respond to student learning preferences and needs.

Six Components of a WebQuest:

Introduction: The introduction section provides background information and motivational scenarios like giving students roles to play: "You are an underwater research scientist," or "You are an astronaut planning a trip to the moon." It also provides students with an overview of the learning goals.

Task: The task is a formal description of what students will have accomplished by the end of the WebQuest.

First, the teacher finds resources for a particular topic on the Web. Then he or she devises an activity for the students incorporating the information from the various sites.

Students can be asked to publish their findings on a website, collaborate in an online research initiative with another site or institution, or create a multimedia presentation on a particular aspect of their research. The task should be visually and aesthetically appealing, inherently important (global warming, acid rain, etc.) and fun for the students.

Process: This is a description of the steps learners should go through in accomplishing the task, with links embedded in each step.

Resources: This section of the WebQuest consists of a list of the resources (bookmarked Websites, print resources, etc.) that students will need to complete the task.

In older WebQuests, the resources are listed in a section of their own. More recent WebQuests have the resources embedded within the Process section, to be accessed at the appropriate time.

Evaluation: Each WebQuest needs a **rubric** for evaluating students' work. The standards should be fair, clear, consistent, and specific to the tasks set.

Conclusion: This step allows for reflection by the students and summation by the teacher. During the concluding section of a WebQuest, students are encouraged to suggest ways of doing things differently to improve the lesson and to discuss possible extensions and applications.

For help in developing Webquests and samples of existing Webquests, visit the website below. Choose the icon A WebQuest about WebQuests and select your interest area in order to experience the format.

Source: www.webquest.org/index-resources.php

63. Wordless Words

This is an interactive strategy that can be used when learning new vocabulary in any subject area.

Process:

- Tell students you will be working on the vocabulary for the next chapter or unit in a particular subject.
- Divide your class into groups of three.
- Appoint a group leader.
- Ask each group leader to come forward to collect markers, paper and one vocabulary word.
- The group leader shares the vocabulary word with his/her group only.
- The task of each group is to: 1) draw a visual of the vocabulary word and 2) to come up with physical motion to represent the word.
- In the situation where there are two or three different suggestions within the one group the group has to choose the best option. They must draw a visual and create the motion.

- After about 10 minutes, ask for a volunteer from each group to come forward to present the visual and the motion.
- The rest of the class must try to guess the vocabulary word the group had.
- The full class does the motion.
- Continue this process for each of the words.

Source: Adapted from: Staff Development for Educators. Train - the-Trainer Institute (2009)

64. Write Around/Marathon Writing

This strategy can be used when introducing a new topic to gauge a student's prior knowledge. It may also help determine what new learning has occurred.

Process:

- Students are arranged in a group of four sitting at a table. When the teacher gives the signal, each student begins writing about the assigned topic. They continue writing until the teacher gives the signal to stop (1 to 2 minutes). Students are to stop immediately; in the middle of a sentence or even in the middle of a word.
- Students pass their paper to the student to their immediate right. Students read what was written and continue from where the previous student left off. They write until the teacher gives the next signal to stop and pass papers to the right (2 minutes).
- This continues until all four students have written on each other's paper. Additional time should be given to the 3rd and 4th pass as there will be more to read each time the paper is passed along.
- The group discusses the content of each paper and selects one paper to represent their group's collective idea on the topic. One member from each group will read their chosen paper to the class.

Source: Goldberg, Natalie. (2005) *Writing Down the Bones: Freeing the Writer Within.* Shambhala Publications, Boston. (2nd ed.)

65. Watch-Read-Watch-Read (W-R-W-R)

Students watch a short clip from a movie version of a novel (3-5 minutes) allowing them to see enough to want to continue reading the novel. The teacher specifies critical elements of the movie clip that students should look for when viewing, such as setting, types of homes, physical appearances, prediction, vocabulary, problems and solutions.

Process:

- Teacher locates appropriate approved video to match a novel that the class is reading.
- Teacher identifies 3-5 clips that might be used before beginning the novel or at any point during the reading.

  - The teacher decides on which elements of the clips she wants the students to focus. This may include setting, plot, character, language, conflict, etc.
  - Have students watch the video clip, and then lead a discussion of the elements for which students were asked to look.
  - Have students read the portion of the text that matches the video clip.
- Discuss how the same elements were described in the text.
- Ask students how the video clarified or expanded their understanding of the written text.
- Where there are differences between the text and the video, lead a discussion about why the director might have changed what the author wrote.

Source: Hibbing, Anne N., and Joan L. Rankin-Erickson. "A Picture is Worth a Thousand Words: Using Visual Images to Improve Comprehension for Middle School Readers." The Reading Teacher 56 (2003): 758–770.


APPENDICES

Appendix A

Question Starters and Classroom Activities: Differentiated According to Bloom's Taxonomy

Question Starters	Potential Activities
Level 1: Knowledge (Recall)	
1. What is the definition for…? 2. What happened after…? 3. Recall the facts. 4. What were the characteristics of …? 5. How many…? 6. Who was the …? 7. Tell in your own words.	1. Describe the … 2. Make a time line of events 3. Make a facts chart 4. Write a list of… steps in … facts about 5. List all the people in the story 6. Make a chart showing 7. Recite a poem
Level 2: Comprehension	
1. Why are these ideas similar? 2. In your own words retell the story of… 3. What do you think could happen? 4. How are these ideas different? 5. Explain what happened after? 6. What are some examples? 7. Can you provide a definition of …? 8. Who was the key character?	1. Cut out/draw pictures to show event. 2. Illustrate the main idea. 3. Make a cartoon strip showing a sequence of events. 4. Write and perform a play based on … 5. Compare this ____ with ____ 6. Construct a model of … 7. Write a news report. 8. Prepare a flow chart to show…
Level 3: Application	
1. What is another instance of…? 2. Demonstrate the way to … 3. Which is the most like…? 4. What questions would you ask? 5. What factors would you change? 6. Could this have happened in …? **7.** How would you organize these ideas?	1. Construct a model to demonstrate using it. 2. Make a display to illustrate one event. 3. Make a collection about … 4. Design a relief map to include relevant information about an event. 5. Scan a collection of photographs to illustrate … 6. Create a mural to depict…

Level 4: Analysis	
1. What are the component parts of …? 2. What steps are important in the process of …? 3. If … then … 4. What other conclusions can you reach about … that have been mentioned? 5. The difference between the fact and the hypothesis is… 6. The solution would be to … 7. What is the relationship between … and …?	1. Design a questionnaire about … 2. Conduct an investigation to produce … 3. Make a flow chart to show … 4. Construct a graph to show … 5. Put on a play about … 6. Review … in terms of identified criteria. 7. Prepare a report about the area of study.
Level 5: Synthesis	
1. Can you design a …? 2. Why not compose a song about …? 3. Why don't you devise your own way to …? 4. Can you create new and unusual uses for …? 5. Can you develop a proposal for …? 6. How would you deal with …? 7. Invent a scheme that would…	1. Create a model that shows your new ideas. 2. Devise an original plan to experiment for … 3. Finish the incomplete … 4. Make a hypothesis about … 5. Change … so that it will … 6. Propose a method to … 7. Prescribe a way to … 8. Give the book a new title.
Level 6: Evaluation	
1. In your opinion … 2. Appraise the chances of … 3. Grade or rank the … 4. What do you think should be the outcome? 5. What solution do you favor and why? 6. Which systems are best? Worst? 7. Rate the relative value of these ideas to… 8. Which is the better bargain?	1. Prepare a list of criteria you would use to judge/Indicate priority ratings you would give. 2. Conduct a debate about an issue. 3. Prepare an annotated bibliography … 4. Form a discussion panel on … 5. Prepare a case to present your opinions about … 6. List some common assumptions about…

Source:http://www.abss.k12.nc.us/cms/lib02/NC01001905/Centricity/Domain/2423/Question%20Starters%20and%20Classroom%20Activities.pdf

Appendix B

Teacher Growth in Differentiated Instruction: Levels of Teacher Understanding

Novice	Apprentice	Practitioner	Expert
▪ Unsettled by the ambiguous and organic nature of differentiation. ▪ Seeks algorithmic processes and expects "mastery" of differentiation. ▪ Focuses on the challenges instead of the benefits/necessity. ▪ Seeks solutions that are already part of a repertoire of strategies instead of redefining the nature of curriculum and instruction. ▪ Identifies the challenges inherent in high-prep differentiation (grading major projects) instead of focusing on low-prep possibilities. ▪ Lacks a big-picture understanding of the philosophy due to misperceptions about good curriculum or instruction (e.g. assessment and evaluation). ▪ Lacks persistence and a willingness to work at understanding and application.	▪ Tolerates the ambiguous nature of differentiation. ▪ Understands the differentiation philosophy, but lacks confidence in applying it. ▪ Acknowledges gaps in personal understanding and skills with differentiating curriculum and instruction. ▪ Makes surface connections between differentiation and other models and strategies inherent in good curriculum and instruction. ▪ Demonstrates a willingness to work through challenges with some persistence. ▪ Distinguishes between good curriculum and instruction and that which is differentiated. ▪ Asks thoughtful questions about both the philosophy and the application. ▪ Can accurately explain differentiation as a concept.	▪ Accepts the ambiguous nature of differentiation. ▪ Demonstrates accuracy and confidence in explaining differentiation of curriculum and instruction. ▪ Makes connections among various methods within a discipline to facilitate differentiation. ▪ Understands the connections among content, process, product, and learning environment when differentiation is achieved in the areas of readiness, interest, and learning profile (or any combination of the areas). ▪ Exhibits a belief in differentiation, but lacks confidence at times in addressing challenges. ▪ Recognizes and avoids the quick fixes to differentiating curriculum and instruction.	▪ Skillfully differentiates curriculum and instruction. ▪ Models differentiation with fluency and flexibility in staff development and teaching situations. ▪ Problem solves in situations where differentiation is both necessary and difficult. ▪ Articulates the rationale, philosophy, and how-to of differentiation to a wide variety of audiences (e.g. parents, teachers, students, administrators). ▪ Uses various methods from a variety of disciplines to facilitate differentiating curriculum and instruction. ▪ Exhibits an unyielding belief that differentiation is necessary for all students. ▪ Seeks new methods that will help refine differentiation of curriculum and instruction. ▪ Understands there is much left to learn in the area of differentiation.

Source: Hedrik, Kelly (2005) http://www.montgomeryschoolsmd.org/uploadedFiles/schools/senecavalleyhs/academics/staffdev/diff-made2measure.pdf

Appendix C

What Type of Professional Learning is required for Teachers at Each Stage?

Novice	Apprentice	Practitioner	Expert
▪ Clarification on both the big picture of differentiation and the foundational components. ▪ Focus on the theoretical underpinnings of the concepts and principles. ▪ Frequent and specific feedback on perceptions, questions, and ideas. ▪ Opportunities to build on the characteristics of good instruction as a bridge into differentiation. ▪ Specific and clear examples of differentiation. ▪ Analysis of curricular and instructional examples. ▪ Focus on the benefits and necessity despite inconvenience and discomfort. ▪ Opportunities to experience, with support, the organic nature of	▪ Continued study and discussion with a variety of tools and practitioners experienced in differentiation. ▪ Opportunities to critically analyze curriculum and instruction to identify the degree and areas of differentiation. ▪ Problem solving with increased challenge over time. ▪ Opportunities to articulate the rationale, principles, and methods of differentiation. ▪ Discussion and problem solving (with support) in the areas of tasks, flexible grouping, ongoing assessment, and adjustment. ▪ Focus on differentiating curriculum and instruction through studying the topics needed for low-prep	▪ Collaboration with varied curriculum and area specialists in differentiating curriculum and instruction. ▪ Specific feedback on differentiating curriculum and instruction. ▪ Discussion and problem solving (with feedback) about the challenges of differentiation (e.g. grading, classroom management, fairness). ▪ In-depth study of topics associated with high-prep differentiation (e.g. tiered assignments, assessment, and evaluation). ▪ Opportunities to explain both the philosophy and the practices associated with differentiation to a variety of audiences. ▪ Observations and analysis of differentiated curricula and	▪ Practice and ongoing support in differentiating curriculum, instruction, and staff development. ▪ Opportunities to work collaboratively with specialists to differentiate curriculum, instruction, and staff development with colleagues in a variety of disciplines and areas of specialty (e.g. regular education, special education, gifted education). ▪ Participation in conferences, staff development, and book studies focusing on differentiation an subsequent sharing of experiences/knowledge/skills with colleagues. ▪ Opportunities for discussion and problem solving in areas of concern associated with differentiation with an emphasis on growth. ▪ Opportunities to work with teachers, administrators, and colleagues in refining knowledge, understanding, and skills in the area of differentiation. ▪ Ongoing dialogue about the status of differentiation in the discipline and/or area of

the philosophy. ▪ Low-risk experiences.	differentiation (e.g. respectful tasks, flexible grouping) ▪ Opportunities to make connections among curricular and instructional models as means to differentiated curriculum and instruction.	instruction. ▪ Practice and ongoing support in differentiating curriculum and instruction.	specialty with a focus on growth and developing expertise. ▪ Support in developing and monitoring policies and procedures that promote the differentiation of curriculum, instruction, and staff development.

Source: Hedrik, Kelly (2005) http://www.montgomeryschoolsmd.org/uploadedFiles/schools/senecavalleyhs/academics/staffdev/diff-made2measure.pdf

Appendix D

Suggestions for Using the Eight Multiple Intelligences

Musical/Rhythmic	Verbal/Linguistic	Logical/Mathematical
Sing it Create a beat Rap it Make a cheer Create a jingle Hum it Identify sounds React to sounds Listen to sounds Connect to music Write a poem	Read it Spell it Write it Listen to it Tell it Recall it Use “you” words Apply it Chunk information Say it Use mnemonics	Make a pattern Chart it Sequence it Create a mnemonic Analyze it Think abstractly Think critically Use numbers Prove it Interpret the data Use the statistics

Visual/Spatial	Body/Kinesthetic
Mind maps Graphic organizers Video Color code Highlight Shape a word Interpret a graphic Read a chart Study illustrations Visualize it Make a chart Create a poster	Role play Walkabout Dance Lip sync Skits/charades/mimes Construction Math manipulatives Sign language Sports Activity centers Body language

Intrapersonal	Interpersonal	Naturalist
Metacognition Use self-talk Work independently Solve in your own way Understand self Journal it Rehearse it Use prior knowledge Connect it Have ownership	Think-Pair-Share Jigsaw Cooperative grouping Drama Debates Class meetings Role play Meeting of minds Peer counseling Tutors/buddies Giving feedback Shared journals	Label it Categorize it Identify it Form a hypothesis Do an experiment Adapt it Construct it Classify it Investigate it Discern patterns

Source:http://www.appomattox.k12.va.us/acps/attachments/6_6_12_dan_mulligan_handout.pdf