

Differentiating for Exceptionally Able Students

in

Post-Primary School Classrooms







Special Education Support Service – Models of Provision

- Funding for courses via Supports Scheme
- SESS-designed seminars, conferences and courses
- School visits
- Funding for accredited courses
- Telephone and e-mail support
- On-line learning
- In-school professional development
- Group professional development initiatives
- Individual professional development
- Online lending library
- Online resources

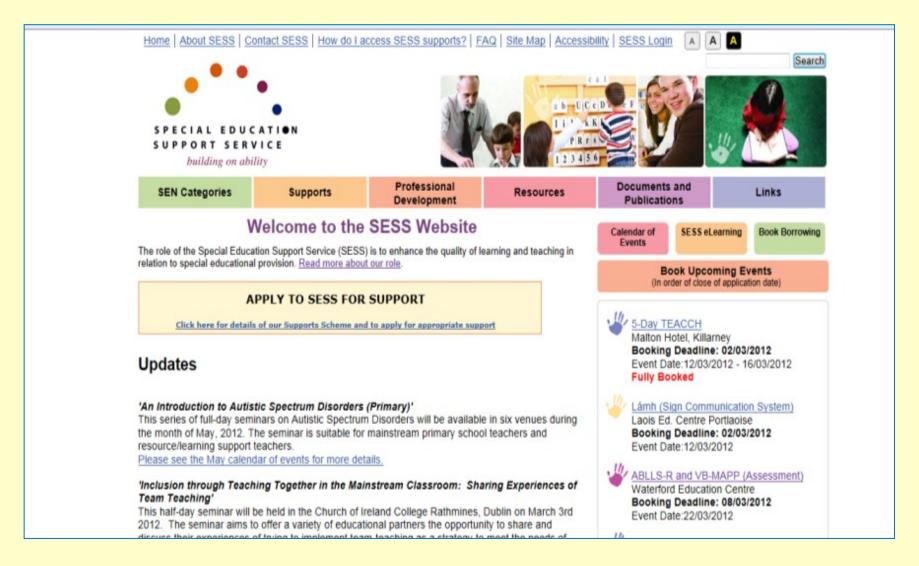


Special Education Support Service

Aims:

- To enhance the quality of teaching and learning with particular reference to the education of children with special needs
- To design and deliver a range of professional development initiatives and supports for school personnel
- To consolidate and co-ordinate existing professional development and support

SESS Website



Expected Outcomes

Participants will have:

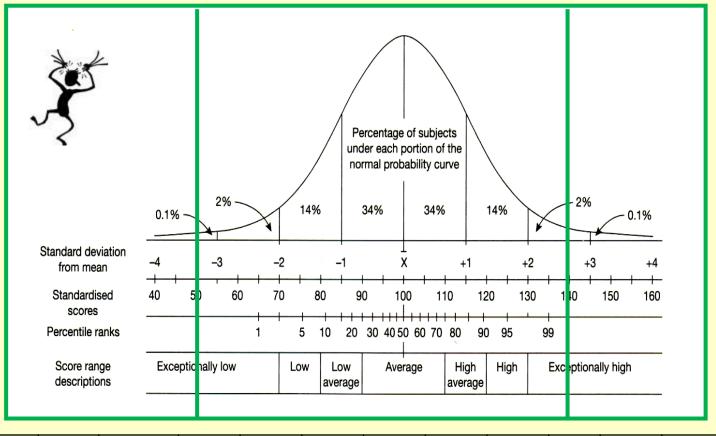
 an understanding of individual differences in learning

 knowledge of a range of differentiated teaching strategies

Individual Differences in Learners

- Cognitive ability
- Intelligences/exceptional ability/talent
- Prior knowledge or expertise
- Learning rate
- Learning style preference, strengths and interests
- Motivation, attitude and effort

(Burns et al. (2002) From compliance to commitment: Technology as a catalyst for communities of learning. *Phi Delta Kappan*, 84(4), 295-302.



<20	20-35	36-50	51-70	71-80	81-90	91-110	111-115	116-120	121-	131-140	140+
									130		
Profound	Severe	Moderate	Mild	Border-	Low	Average	High	Above	Very	Except-	Superior
General	General	General	General	line	Average		Average	Average	Able	ionally	
Learning	Learning	Learning	Learning	MGLD						Able	
Difficulty	Difficulty	Difficulty	Difficulty								
			(MGLD)								

Dual Exceptionality (DE)

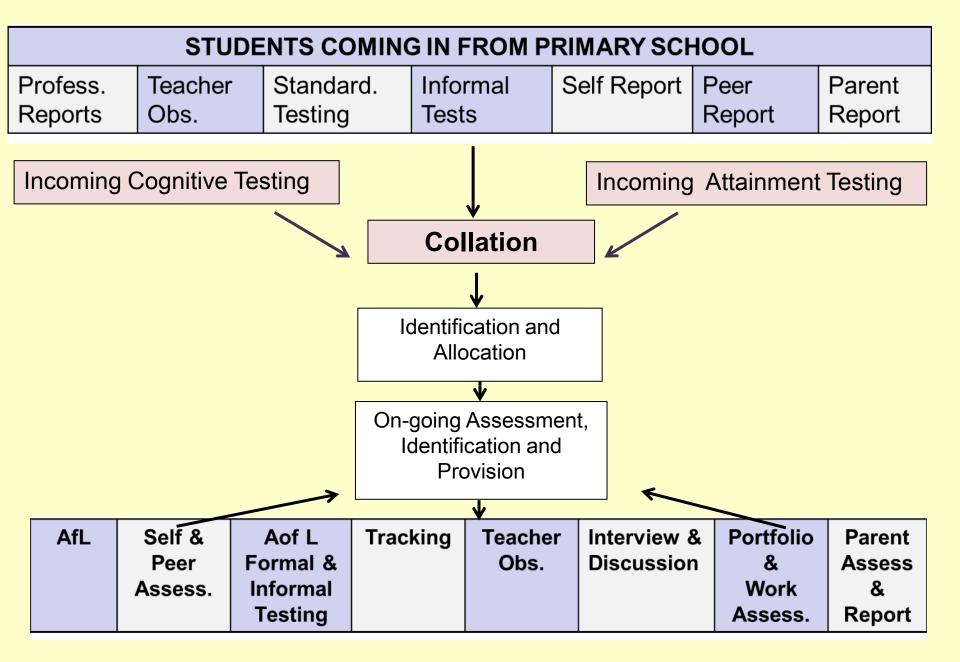
High ability, with disability that affects some aspects of learning, for example:

Dyslexia, DCD, ADD, Asperger's Syndrome, Hearing and Visual Impairment

- Disability may mask Ability
 - Dyslexia masking reasoning
- Ability may mask Disability
 - Asperger's Syndrome

Risk of Under-identification

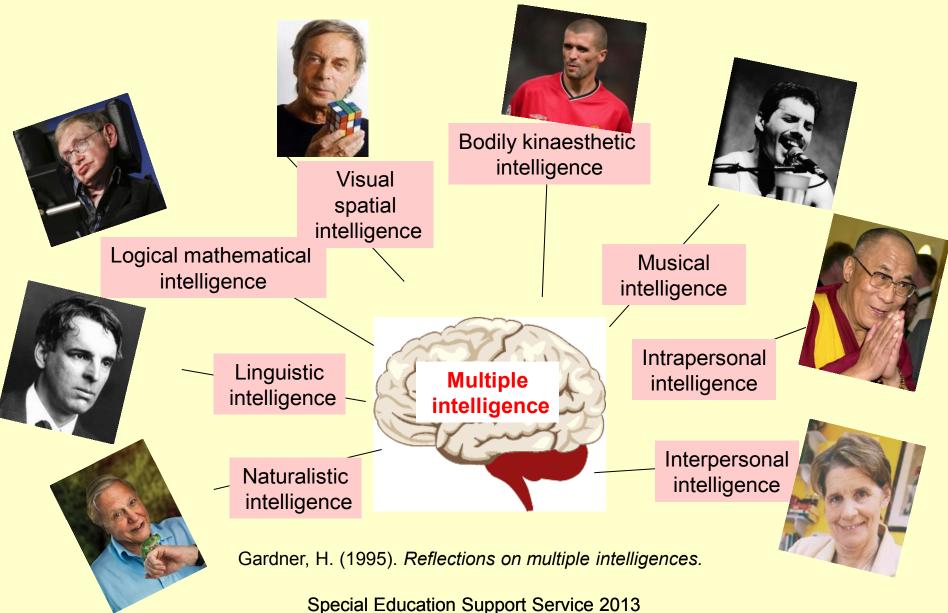
- Where there are specific learning disabilities
- Where there are sensory or physical impairments
- From disadvantaged and marginalised background
- Where English is not the first language
 - Where students do not fit stereotypical profiles of 'exceptionally able'



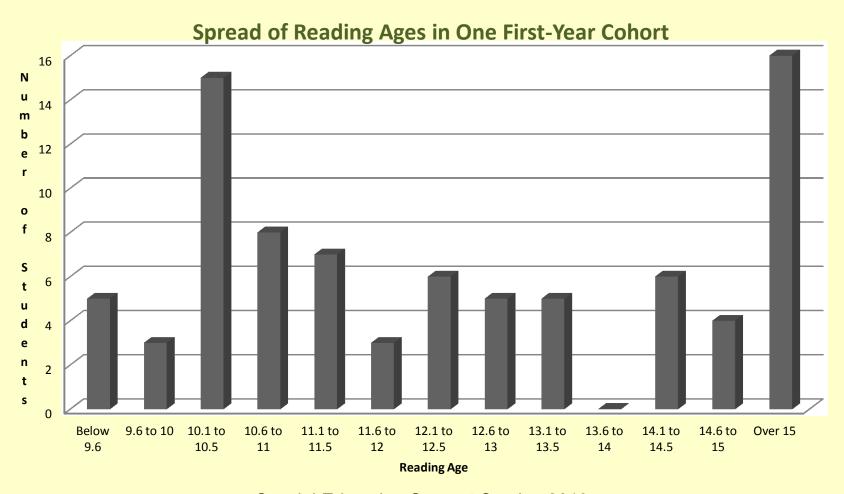


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Multiple Intelligences



Difference in Expertise Evident in Assessment Data



Learning **Styles**

Visual learners

- Prefer to see rather than be told
- Quick to spot details
- Enjoy doodling, drawing and writing
- Can visualise what they are told
- Can quickly forget auditory information

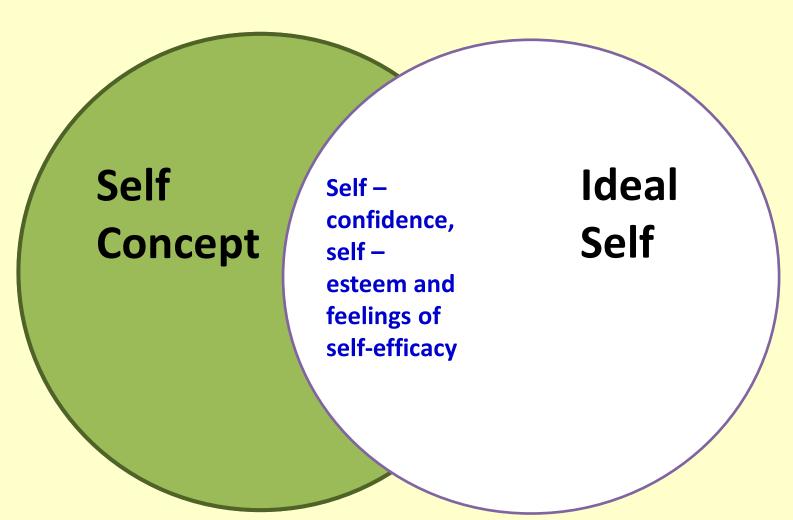
Auditory learners

- Follow verbal instructions quickly and easily
- Rely on memory rather than notes
- Oral skills are better than written
- Enjoy talking and explaining

Kinaesthetic learners

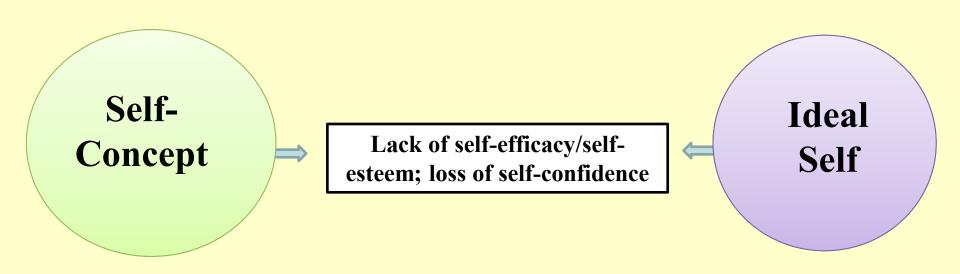
- Enjoy practical 'hands on' activities
- Need to be active and can appear unsettled
- Prefer to try out rather than read the instructions

Motivation, Attitude and Effort: Self-Esteem



Motivation, Attitude and Effort: Self-Criticism

What students cannot do may be more emphasised than their abilities.



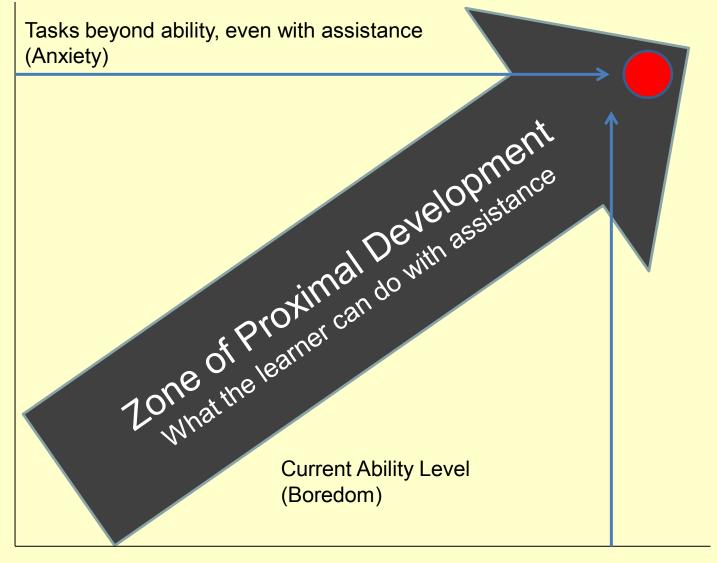
Differentiation in the Classroom

Based on the premise that students learn:

- at different levels
 - levels of ability/thinking
- in different ways
 - learning styles
- at different rates
 - pace of work
- motivated by different interests
 - personal interests/intelligences
- with different skill levels
 - particularly in areas such as reading and writing

ZONE OF PROXIMAL LEARNING:

Focused Teaching



Level of COMPETENCE

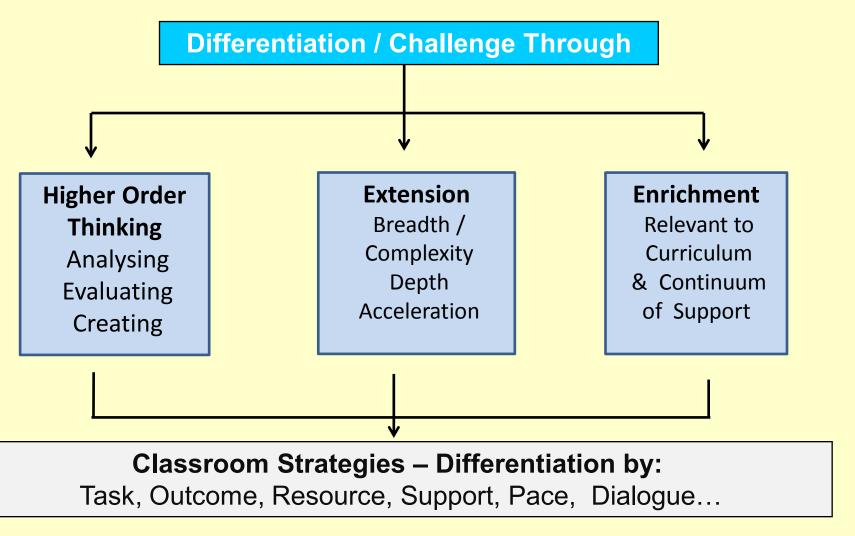
Some Forms of Differentiation

- By task drawing on higher order thinking skills; broader or deeper knowledge of subject area; more developed literacy skills...
- By resources –text-to-speech software; internet resources; using less accessible texts such as journals; art; music, drama...
- By response/product allowing choice of product according to learning style, interests and/or intelligence, or in order to assist development of skills set...
- By support/scaffolding especially important in developing research skills; metacognitive skills and to support dualexceptional students

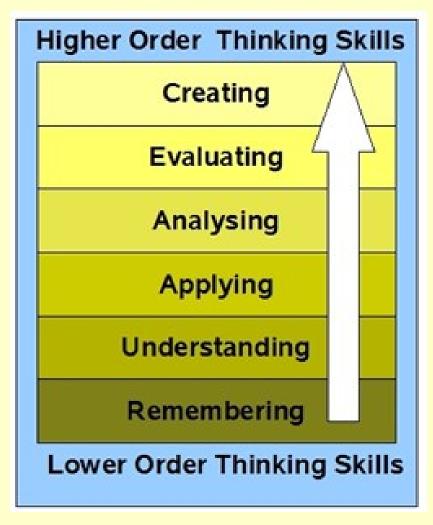
Some Forms of Differentiation: 2

- By questioning 'no hands up', 'wait time'; HOT questions...
- By dialogue enabling social construction of learning through dialogue in groups...
- By pace/level pre-testing students and accelerating through subject (compacting); allowing students to work at own pace through material...
- By choice/interest –encouraging individual approaches to subject material based on interest; allowing choice of tasks and outcomes...

Differentiation: Key Concepts and Terminology



Thinking in the Classroom: Using Bloom's Taxonomy to Differentiate



Creating

Putting elements together to generate new or alternative ideas, products, or ways of viewing or doing things

Evaluating

Justifying a decision or course of action Checking, hypothesising, critiquing, experimenting, judging

Analysing

Breaking information into parts to explore understandings and relationships Comparing, organising, deconstructing, interrogating; finding

Bloom's Revised Tax

Applying

Using information in another familiar situation Implementing, carrying out, using, executing

<u>Understanding</u>

Explaining ideas or concepts
Interpreting, summarising, paraphrasing, classifying, explaining

Remembering

Recalling information
Recognising, listing, describing, retrieving, naming, finding

Differentiating by Task

Must

 Basing questions/tasks on the lower order thinking skills: remembering and understanding

Should

Basing questions/tasks on the applying and analysing levels of thinking

Could

Basing questions/tasks on evaluation or synthesis

Differentiation - 'HOT'

English Curriculum – Poetry: *The Fish* by Elizabeth Bishop

<u>reate</u>	Based closely on the theme/s of the poem, write a conversation that might have taken place between Bishop and a companion in the evening after the event.
<u>valuate</u>	 What effect was the poet trying to achieve with her use of images such as stained wallpaper, scratched isinglass and tarnished tinfoil? Do you think that she was successful?
<u>\nalyse</u>	Compare this poem with <i>The Filling Station</i> . Identify and describe three similarities between the two poems.
\pply	 Identify four similes that Bishop uses in this poem. Why does she use them?
Jnderstand	What do you think this poem is about? In your own words describe the events described in the poem.
Remember	List five details that Elizabeth Bishop gives in describing the fish Where do the events described in this poem take place?

Differentiation – 'HOT'

Geography: Studying Volcanoes

<u>Create</u>	 Make a news –sheet that might have been produced in Rome the day after the eruption of Mt. Vesuvius in 79 A.D. Include at least one eye- witness report.
<u>Evaluate</u>	 Choose one well-known volcano and assess to what extent it has, down through the years, affected the lives of the people living nearby. Would you say that the effects were/are, on balance, more harmful than beneficial?
<u>Analyse</u>	 Read a story/watch a film about a volcanic eruption and write a critical review of it. Include an analysis of the scientific accuracy of the eruption and its effects.
<u>Apply</u>	 Make a word-search which includes twenty keywords relating to volcanoes. Make pictorial clues.
<u>Understand</u>	 What causes a volcano to erupt? What effects can volcanoes have?
Remember	 Draw and label a diagram of a volcano. List four different types of volcano.

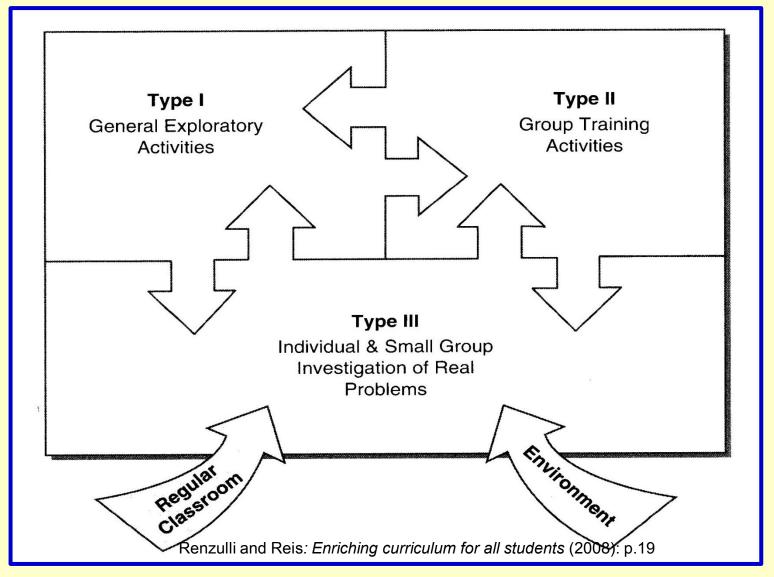
Bloom's Taxonomy applied to understanding the Pythagoras Theorem

Create	Describe how you would teach a younger sibling the concept and use of the Pythagorean Theorem. Communicate your understanding through exploratory examples and sample problems.
Evaluate	 How could you effectively assess someone's understanding of the Pythagorean Theorem? Persuade me of the usefulness of the Pythagorean Theorem in a career area of interest to you.
Analyse	If the hypotenuse of a right triangle measures 169 cm, what are the possible whole number lengths of the other two legs?
₹pply	 If I need to reach a window 12 ft. off the ground and I only have 5 ft. of room from the base of the wall, at most how long does my ladder need to be?
Jnderstand	Explain how you would use the Pythagorean Theorem to find the height of an equilateral triangle of side 6 cm.
Remember	 State the Pythagorean Theorem True/False: The Pythagorean Theorem only works for right triangles

Methods of Differentiation: Compacting

- Renzulli and Reis (1992) found that at elementary level, 40% to 50% of the curriculum could be eliminated for the top 10% to 15% of students
- While it has been shown by research to be very effective, compacting should not be over-used as intense work may stress students

Using the **Enrichment** Triad Model



Finding the Learning Zone

Phase 1: Introduce and pre-test new topic:

- Survey topic briefly
 - Activate prior knowledge
- Use hooks to draw students into the topic
 - Link to other areas of curriculum, to students' lives, to the world
- Compact as appropriate
 - let all students test knowledge using a 'must, should could' order of questioning or ask students who feel they know the material well enough to do the post-test before you teach the module
- Anyone who gets over 80% does extension/enrichment work on the same area of the curriculum

Based on Renzulli and Reis: Enriching Curriculum (2008) Ch.2

Developing the Skills

Phase II: developing the skills necessary for enrichment/extension work —

- General training: cognitive strategies; metacognitive skills; problem-solving; research skills including critical use of reference materials and electronic sources; written, oral and visual communication skills; interpersonal skills/teamwork
- Specific training: skills needed for extension in a particular field

Based on Renzulli and Reis: Enriching Curriculum (2008) Ch.2

Phase III Independent Individual/Small Group Extension or Enrichment

Teachers:

- enable students to use their interests and skills to explore a self-selected area of study or to do extension tasks
- assist students in setting goals
- support students in choosing and developing products appropriately
- support them in becoming self-directed, independent learners

Students:

- either individually or in small group select area for research or study
- record and present findings through a medium agreed with the teacher

(Based on Renzulli and Reis: *Enriching Curriculum* (2008) Ch.2)
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Learning Contract

NAME:	Date:			
The Learning Aim of my work today will be:				
The activity I have chosen is:				
The success criteria for this task wil	Il be:			
a)				
b)				
c)				
I intend to fulfil these criteria -Stude				
Teacher signature:				

Methods of Differentiation: Compacting Geography- Volcanoes

Before Class:

Collect extension materials for the chapter and set up an Extensions Shelf/Table/File

Class:

Tell class that they are starting a new chapter. Give them five minutes to look over the chapter and to check how much of the content they might already know.

Test:

Use the test that you intend to use at the end of the topic. Allow anyone who wants to try the test to take it. Anyone who is not taking the test may do an extension activity from the previous chapter.

Methods of Differentiation: Compacting a Geography Topic - Volcanoes

Checking the Test:

Anyone who gets 80% or higher will be eligible for a Learning Contract

Extension activities:

Are usually based on the material that is in the chapter or area on which the other students are working

Example of an Extension Activity used in Compacting: Index Cards

Have a selection for each section of the course:

- can be colour-coded according to Bloom's Taxonomy levels
- front has the chapter number/section/module name and, if also being used as a record of work, space for the student's name and the date
- the task is on the back of the card
- if wished, can be filed when completed and act as a record of students' individual work

Example of Extension Activity used in Compacting: Noughts and Crosses Menu

Write a description of a recent volcanic eruption. Identify the type of eruption and its duration. Include descriptions of some personal/news accounts of the event	Make a news –sheet that might have been produced in Rome the day after the eruption of Mt. Vesuvius in 79 A.D.	Find out what the following words mean: caldera, vesicularity, pahoehoe, reology, lahar, and record the meanings.
Using the internet site www.geology.com/teacher /volcano.shtml find out some interesting news about a volcano and prepare a PP presentation on it.	Make a word-search which includes twenty keywords relating to volcanoes.	Research volcanic activity on Mars. Record your research in an interesting way. (poem, recorded interview)
Hawaiian, Strombolian, Vulcanian, Plinian and Surtseyan are different types of volcano. What can you discover about them?	Read a story/watch a film about a volcanic eruption and write a critical review of it.	Find out about an historic eruption and tell what effect it had on the lives of people living nearby.

Generic Tasks for English/Other Language Texts

A series of generic tasks for work on English or other language texts or film studies and designed according to Bloom's taxonomy:

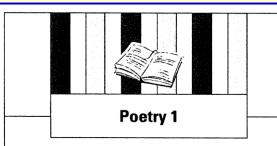
EVALUATING Example

- List some events that could have changed the outcome (plot)
- ❖ What is the relevance of the setting to the plot/themes? (setting)
- Defend one choice made by one of the characters (characterisation)
- Describe and justify the author's purpose (theme)
- ❖ As an editor, describe some changes that you would make to the text. (style)

Generic Questions on Texts: Noughts and Crosses Menu

In your opinion, from whose perspective is this poem written? Do you empathise with his/her point of view? Explain your response.	What moves/interests you most about this poem? Is it the language or the ideas?	If you turned this poem into a song, what kind of music would you use? Explain why. What do you think that it would add to the poem?
Write three questions to test your fellow students' understanding of the theme of the poem.	What visual images come into your mind when reading this poem?	Select one phrase from the poem that caught you attention. What effect did it have on you? Why do you think that the author used the phrase?
Describe two emotions or thoughts that came to you when you first read this poem? How did the poet achieve that effect on you?	Write a poem of your own with the same theme as this poem in any poetic style – haiku, shape poem, sonnet, sestina	Rewrite this poem in your own words in prose. In what way is your writing better than the poem? In what ways is your writing inferior?

Using Bookmarks to Differentiate



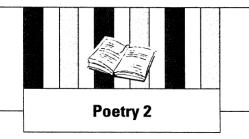
From whose perspective is the poem written? Who might be narrating the poem?

What moves you in the poem? The language? The images?

Select a phrase from the poem that caught your attention while you were reading. Do you think the author used it on purpose? Why, or why not?

On the basis of this poem, what do you know about the narrator's or character's feelings?

What visual images come to mind when you read this poem?



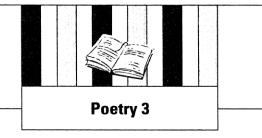
How would this poem change if the narrator were different?

If you turned this poem into a song, what kind of music would you use? Why?

What kind of illustration do you think would be appropriate for this poem?

What two emotions did you feel while reading any single poem in this book? Did your emotions change as you read other poems?

How would the impact of this poem change if it were written as prose?



How does the poet's choice of words influence the visual images that come into your mind while you read?

How does the poet use rhythm to convey meaning in this poem?

How would this poem be different if it were written in a different poetic style? For example, as a limerick instead of a haiku?

Choose a poem to read aloud. What does it sound like?

Does the poem remind you of a book you have read?

Blank Bookmarks

Make your own bookmark! (Then leave it in the book to test your classmates.) Book Title: Author:	Make your own bookmark! (Then leave it in the book to test your classmates.) Book Title: Author:	Make your own bookmark! (Then leave it in the book to test your classmates.) Book Title: Author:
Easy Question:	Easy Question:	Easy Question:
Hard Question:	Hard Question:	Hard Question:
Thought-Provoking Question:	Thought-Provoking Question:	Thought-Provoking Question:

Another Extension Idea

Independent-study action guide:

- Student with a partner, brainstorms subtopics related to the current topic being studied by the class – they should find at least 20. They make a concept map of the related topics
- Students go to school library/media centre for one class period. They choose several subtopics that they find particularly interesting. They must be able to find information on these subtopics within that time.
- They write down the names of these subtopics
- They choose one subtopic to study
- Both Primary and Secondary sources to be named
- An Internet record must be kept

Differentiation in the Classroom: Teacher Questioning the Students

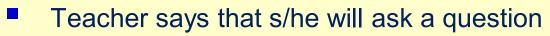
- Questions prompt students to inspect their existing knowledge and experiences to create new understandings
- Questions focus students on the key issues
- Questioning models how experienced learners seek meaning
- Questioning is a key method of differentiation
- Consider how often you ask questions during each class:
 - The average in one class period is 50.6
 - Students ask an average of 1.8 in the same time.
- How long do you wait for an answer?
 - The average wait is less than 1 second

Differentiated Questioning: Thinking Takes Time

What do you think might be.....

- Time to think
- Time to answer
- Extra time to think of more to say
- Students need time to formulate better answers that are longer, more thoughtful and more varied
- Students may be encouraged to 'think, pair and share'
- Using wait time with HOT questions often leads to subsequent well-developed discussion
- This works best when there are 'no hands up'

Questioning in the Classroom: 'No Hands Up'





- Teacher gives a set amount of time, maybe 15 seconds, to think about the question (Wait Time 1)
- Teacher may then ask students to 'pair and share'
- No hands up, no shouting out teacher selects someone to answer
- Teacher nominates one student to answer and waits (Wait Time 2) after answer is given to allow the student to develop his/her answer
- Teacher invites additions from other students and supports dialogue between them

(An AfL strategy)

Questioning in the Classroom: Using Open Questions

Open questions allow for a range of possible answers.

They offer cognitive challenge and they also:

- encourage more flexible thinking
- test the limits of knowledge rather than one item of knowledge
- encourage better assessment of students' beliefs
- offer the possibility to clear up misunderstandings
- result in unanticipated and unexpected answers
- encourage discussion and allow depth of discussion



Questioning in the Classroom: Using Metacognitive Questions

Working in cooperative groups, ask students to generate questions about material that is being studied

Prompt students to create questions that correspond to the different levels of Bloom's Taxonomy

Methods of Differentiation: A Flexible Learning Environment

- Different groupings for different activities, frequently changed:
 - Homogeneous/Cluster grouping
 - Heterogeneous grouping
 - Individualised instruction
 - Whole-class instruction
 - Combination of whole-class and cooperative pairs/groups

A Flexible Learning Environment: Homogeneous Groups

Clusters students of similar ability

- Useful for teaching/consolidating skills
- Extension activities
- Reading groups
- Productive way to work when co-teaching

A Flexible Learning Environment: Heterogeneous Groups

- Groups mixed as to ability and interest
- Use for cooperative learning, discussion, role playing
- Facilitates learning of common objectives
- Good for group projects that promote creativity
- Develops skills in leadership and sharing

Differentiation by Dialogue Asking Questions, Making Meaning

- Pair-problem solving
 - Differentiating for able learners & learners with SEN
- Students devise their own questions for the class/group based on Higher Order Thinking

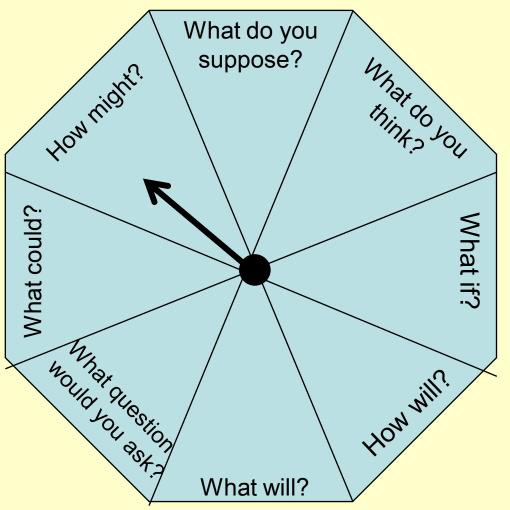
"We learn more by looking for the answer to a question and not finding it, than we do from learning the answer itself."

Lloyd Alexander

Differentiation by Dialogue

Asking Questions, Making Meaning

Question Disk



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Differentiation by Dialogue

Asking Questions, Making Meaning



A Question Board

Topic				
1 How many ways?	How do you suppose?	3 What if?		
4 Can you suggest?	5 What do you think?	6 Knowing what you know, how would?		

Positive Learning Culture

Positive Teaching for Exceptionally Able Students Avoids:

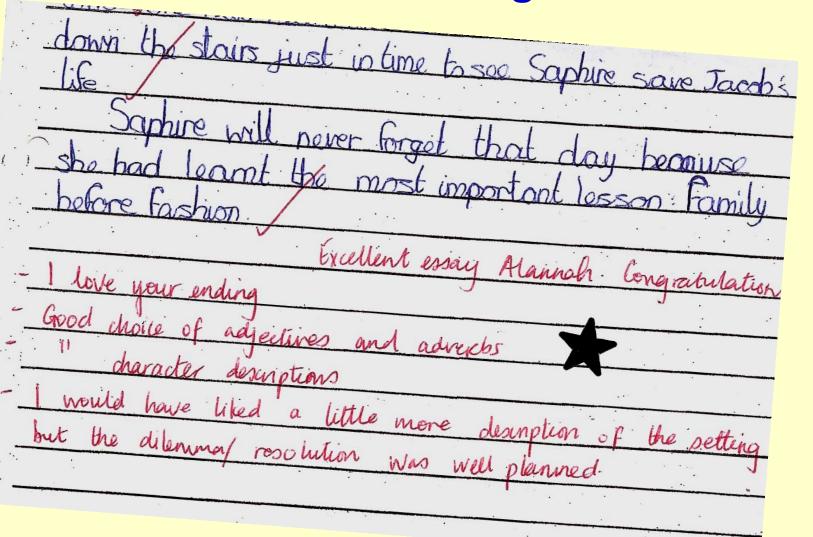
- giving 'more of the same' to students who finish assignments quickly – they see it as 'punishment'
- marking 100%/A1 most of the time encourage intellectual adventure, exploration and uncertainty
- being defensive when being challenged about your facts or knowledge
- putting the challenging student 'in his/her place'

Positive Learning Culture: AfL

- Set home work at the beginning of the lesson
- Share Learning Objectives with students
- Provide written criteria for success in advance of assessment
- Provide exemplars to illustrate standards
- Encourage students to reflect on and improve their work
- Consider the type of feedback which will be provided

Assessment for Learning Feedback





Adapting the Process

Discussion groups, writing, reading, active learning, brainstorming, sequence boxes, concept maps, project work, whole class instruction, peer tutoring, one-to-one, Cooperative learning, group work, Cooperative teaching, INTERACTIVE WHITEBOARDS, power point presentations, websites, CDs, DVDs online textbooks,

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Adapting the Product

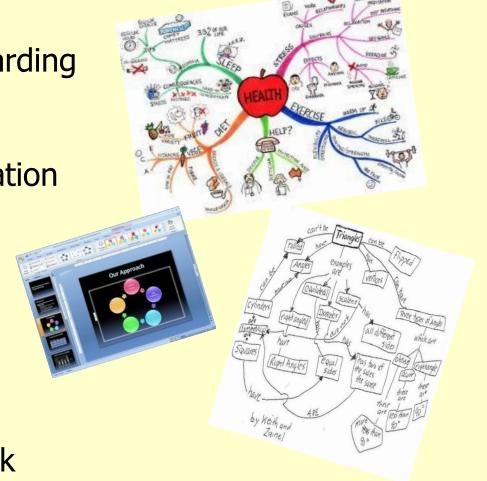
Cartoons / story boarding

Mind maps

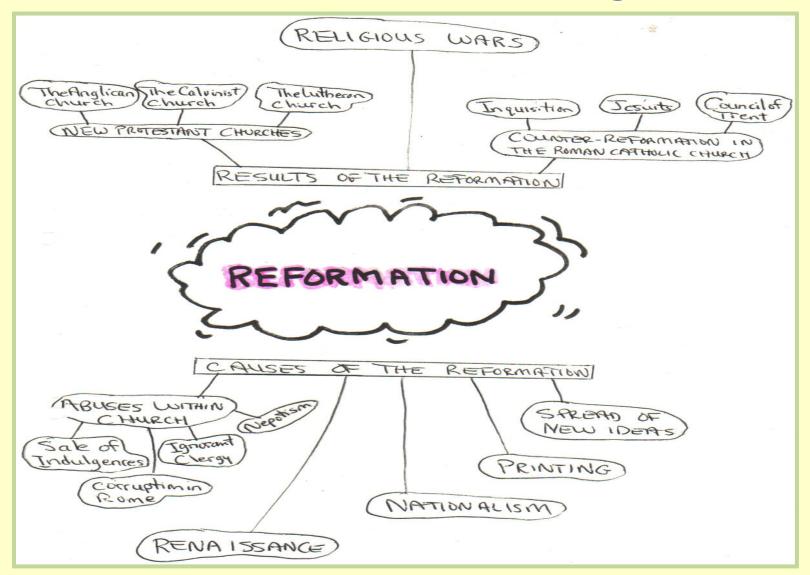
PowerPoint Presentation

Dramatisation

- Video / tapes
- Model making
- Art / design
- Writing/ Project work



Evidence of Learning



Differentiation in a Nutshell

- Developing the higher order skills analysis, synthesis and evaluation
- Open-ended and research-based tasks
 - Group work
 - Homework
- Enrichment activities curriculum-related and structured
- Cross-curricular links
- Including the students' special interests

Acceleration

(A report for the Council of Curriculum, Examinations and Assessment [CCEA], 2006)

- Acceleration: The 'vertical' extension of the curriculum by introducing content at an earlier stage or quicker pace
- Some students progress at a faster than usual rate and/or younger than the typical age
- They need to learn at a level appropriate to their ability level
 - To avoid boredom from lack of challenge, promote good higher-order study skills
 - Capitalise on their interests and abilities

'Extension'

Extension:

The 'horizontal' and 'vertical' extension of the curriculum to challenge students



Breadth:

helping the students to study the topic in breadth and complexity while applying higher-order activities - making connections, identifying relationships, etc.



Depth:

encourage the student to explore a topic in greater detail - moving from:
Concrete to abstract
Known to unknown
Literal 'knowing' to synthesising/creating

Enrichment

Activities Beyond the Classroom / School

- Science / Writing club
- History Trail / Field Trip
- Visit to factory / business
- Museum / Art Gallery
- Mini courses
- Invited speakers
- Summer Schools
- Theatre
- On-line courses
- Extra-mural courses

Finally!

"The joy of learning is as indispensable in study as breathing is to running."

Simone Weil, Waiting for God

