

Differentiation in the Classroom

A Practical Guide for the Mackay School - June 2019



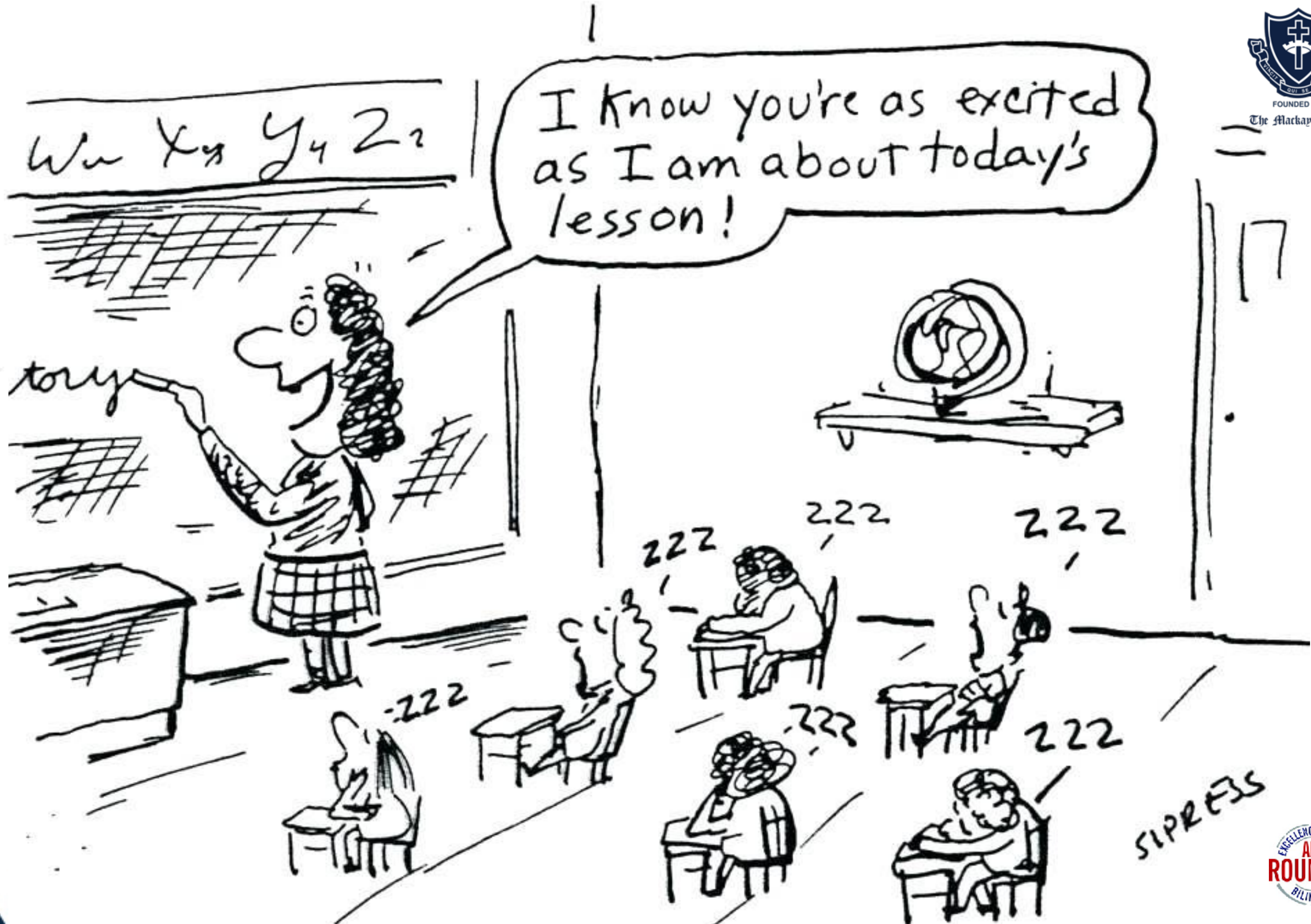
Know, Understand and Do (KUD)



- **Know** the general principles of differentiation
- **Understand** that differentiation is a teachers response to learners needs, guided by a mindset and general principles
- **Do** implement high quality teaching practices which utilize the strategies of differentiation.



FOUNDED 1857
The Mackay School



Wu X₃ Y₄ Z₂

I know you're as excited as I am about today's lesson!

tory

222

222

222

222

222

222

SIPRESS



THE MACKAY SCHOOL



Personalized Learning

Differentiation

Individualization



Rank	Misunderstanding	% who believe it
1	Individuals learn better when they receive information in their preferred learning style (e.g. auditory, visual, kinaesthetic)	93
2	Environments that are rich in stimuli improve the brains of pre-school children	89
3	Short bouts of coordination exercises can improve integration of left and right hemisphere brain function	76
4	Exercises that rehearse coordination of motor-perception skills can improve literacy skills	74
5	Differences in hemispheric dominance (left brain, right brain) can help explain individual difference among learners	74
6	It has been scientifically proven that fatty acid supplement (omega-3 and omega-6) have a positive effect on academic achievement	61
7	Emotional brain processes interrupt those brain processes involved with reasoning	60
8	We only use 10% of our brain	49
9	Memory is stored in the brain much like as in a computer: each memory goes into a tiny piece of the brain	48
10	Children are less attentive after consuming sugary drinks and/or snacks	47



CONE OF LEARNING

DUAL CODING

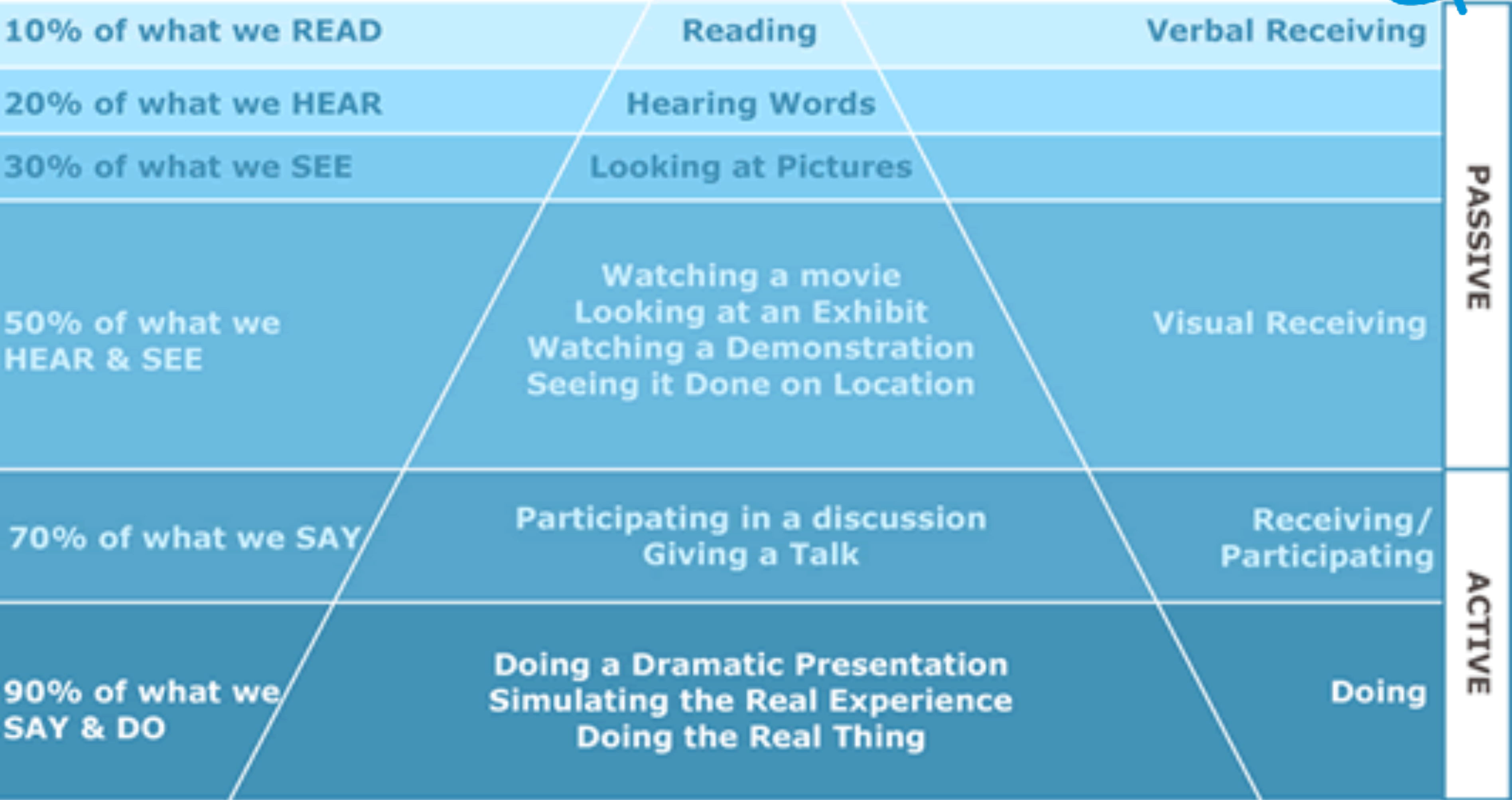
VISUAL CHANNEL

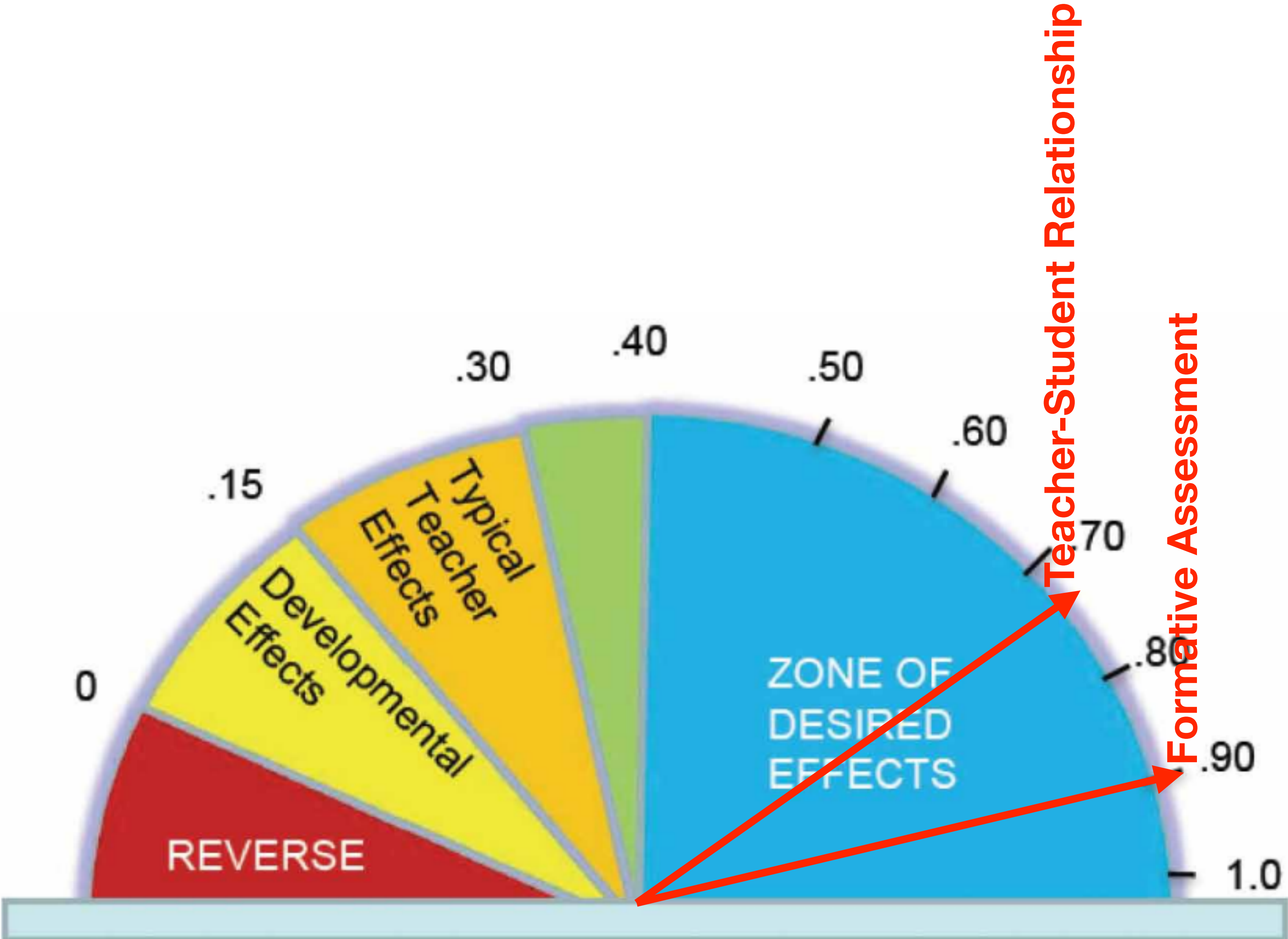


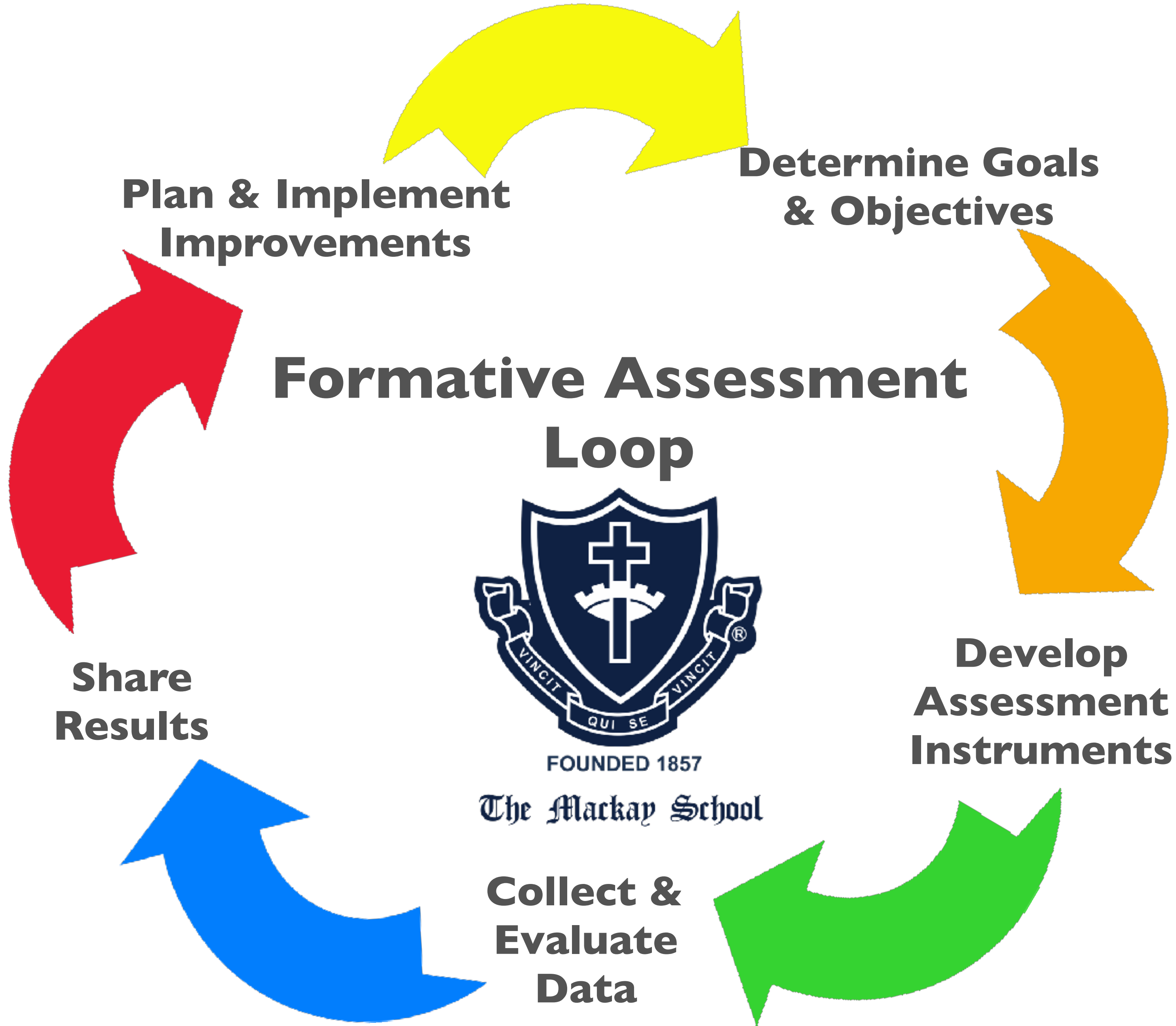
AUDITORY CHANNEL

After 2 Weeks we tend to remember

Nature of Involment







YOUR PLAN

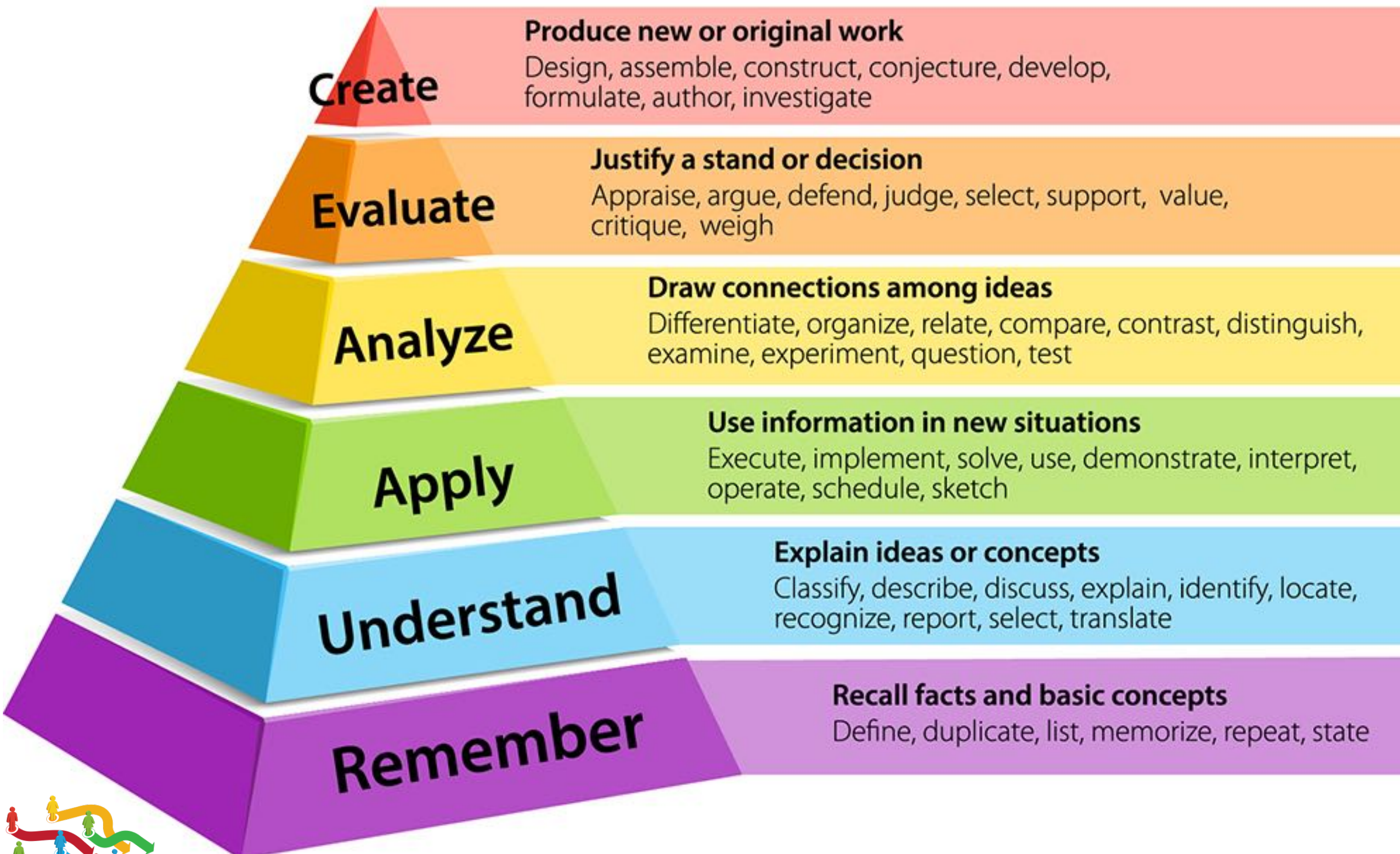




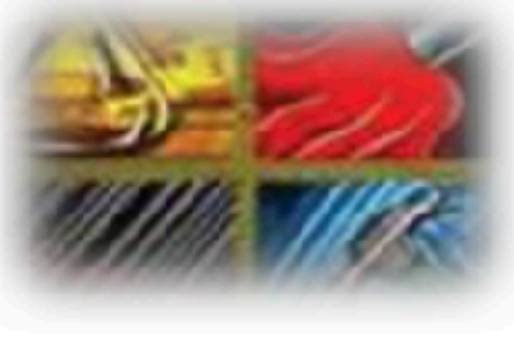



FOUNDED 1857
The Mackay School



~~MORE OF THE SAME~~

Bloom's Taxonomy



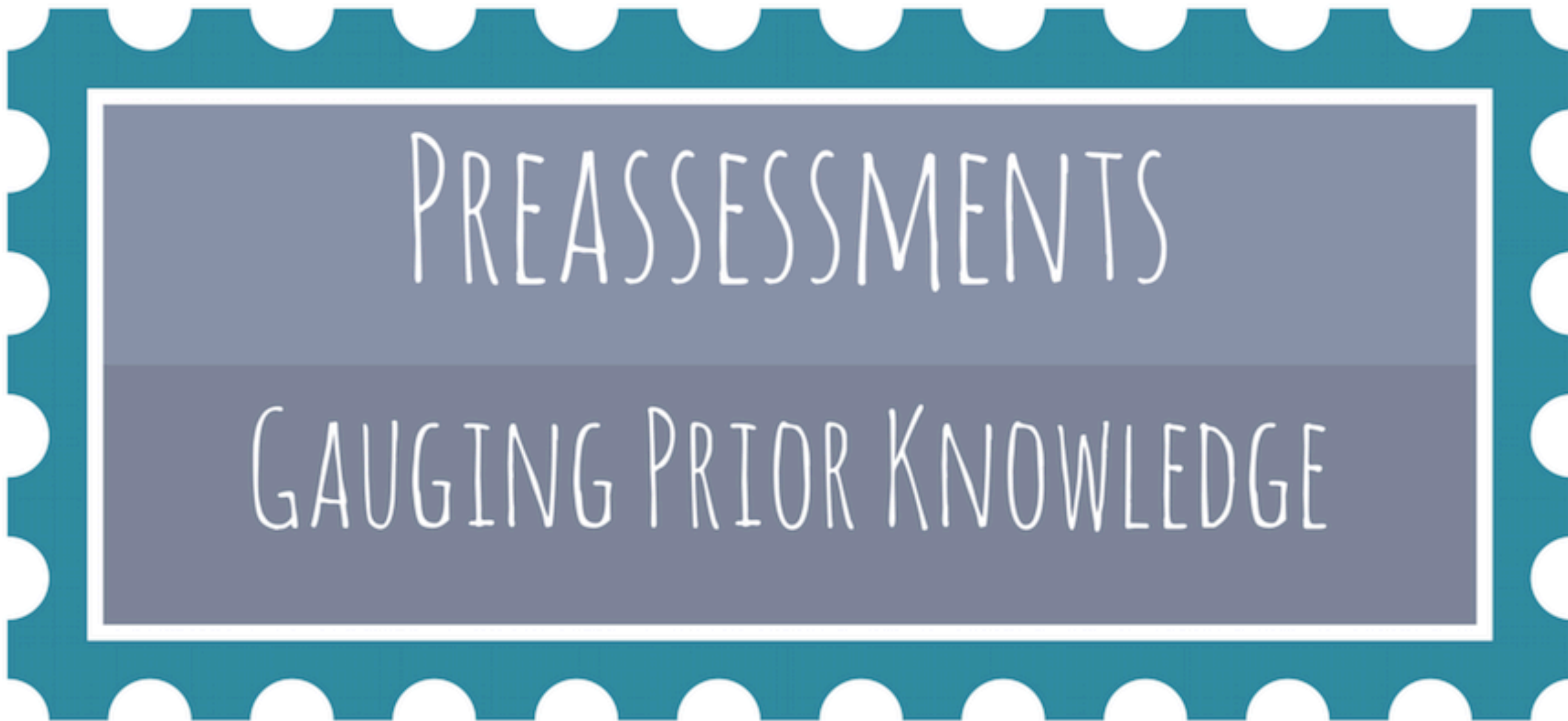
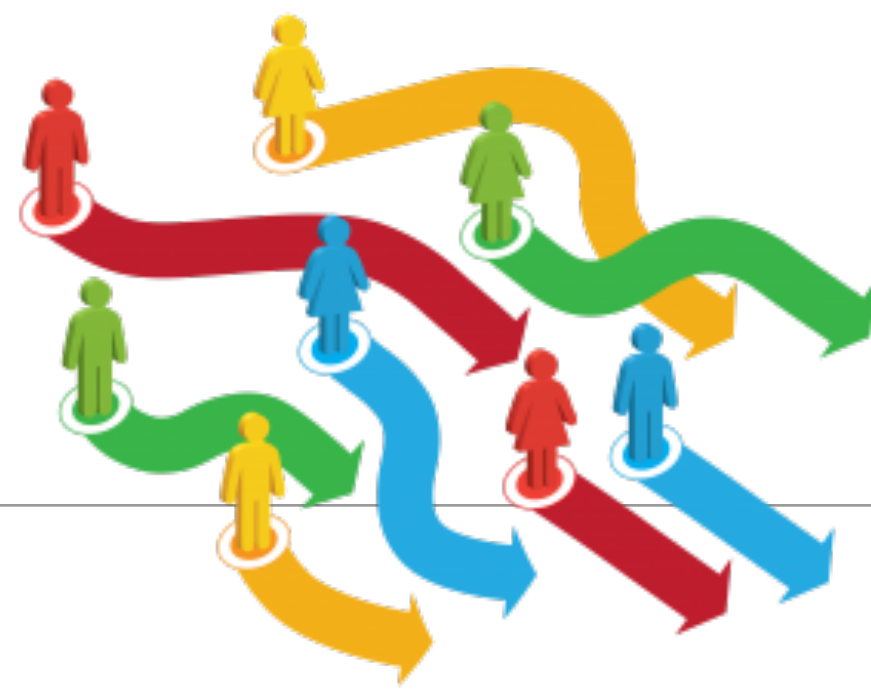
Knowledge <i>Know it</i>	Comprehension <i>Understand it</i>	Application <i>Use it</i>	Analysis <i>Examine it</i>	Synthesis <i>Create it</i>	Evaluation <i>Judge it</i>
 <i>Recall for information</i>	 <i>Show your understanding</i>	 <i>Use what you've learned</i>	 <i>Examine critically</i>	 <i>Put together in a new and different way</i>	 <i>Determine worth or value based on criteria</i>
<i>List, define, name, when, where, state, identify</i>	<i>Retell, summarise, describe, explain, predict, restate, estimate</i>	<i>Solve, use, construct, classify, examine, illustrate, modify</i>	<i>Analyse, compare, distinguish, order, infer, categorise, investigate</i>	<i>Create, design, formulate, invent, imagine, devise, combine</i>	<i>Check, choose, prioritise, critique, hypothesise, judge, debate</i>



Things to avoid...



Pre-assessment

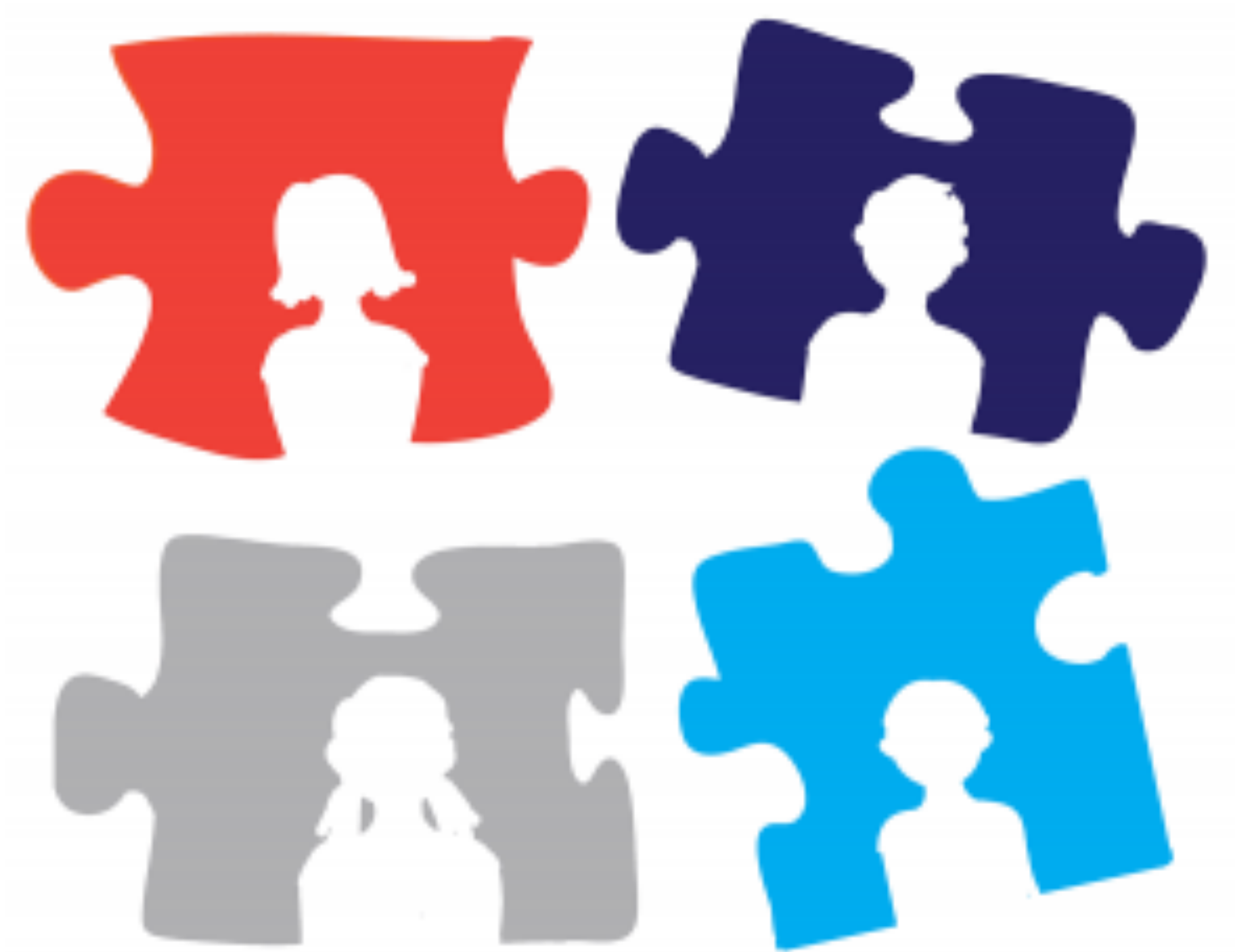


KWL		
What I Know	What I Wonder	What I Learned



Six Types of Differentiation

- Task 
- Resources 
- Response 
- Outcome 
- Group 
- Support 



Task

- As students work in a variety of ways with their different strengths and aptitudes, a range of tasks spanning the spectrum of abilities can be an effective way of differentiating.



Task

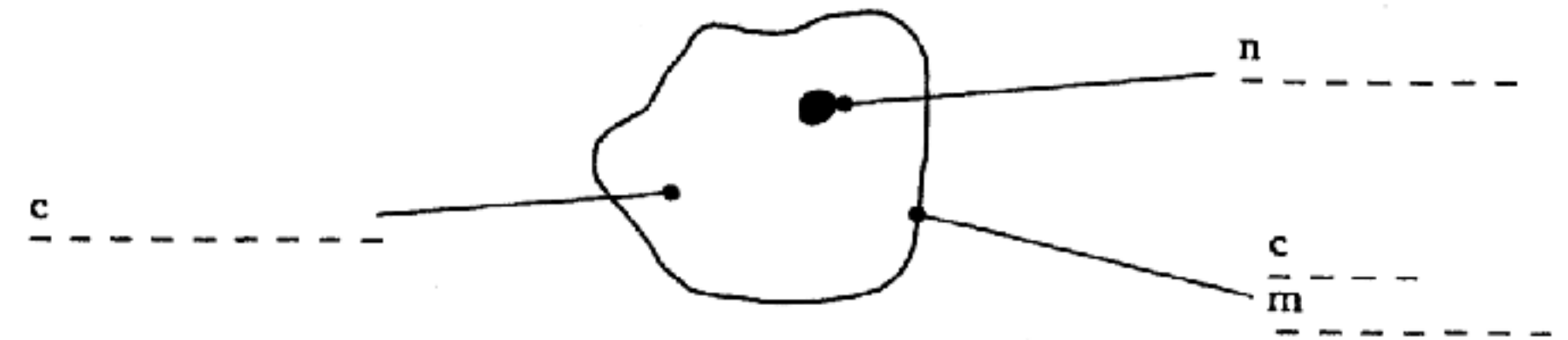
Life's building blocks

• Scaffolding

Animal cells

- Label the parts of this animal cell using the words in the box.

nucleus cell membrane cytoplasm

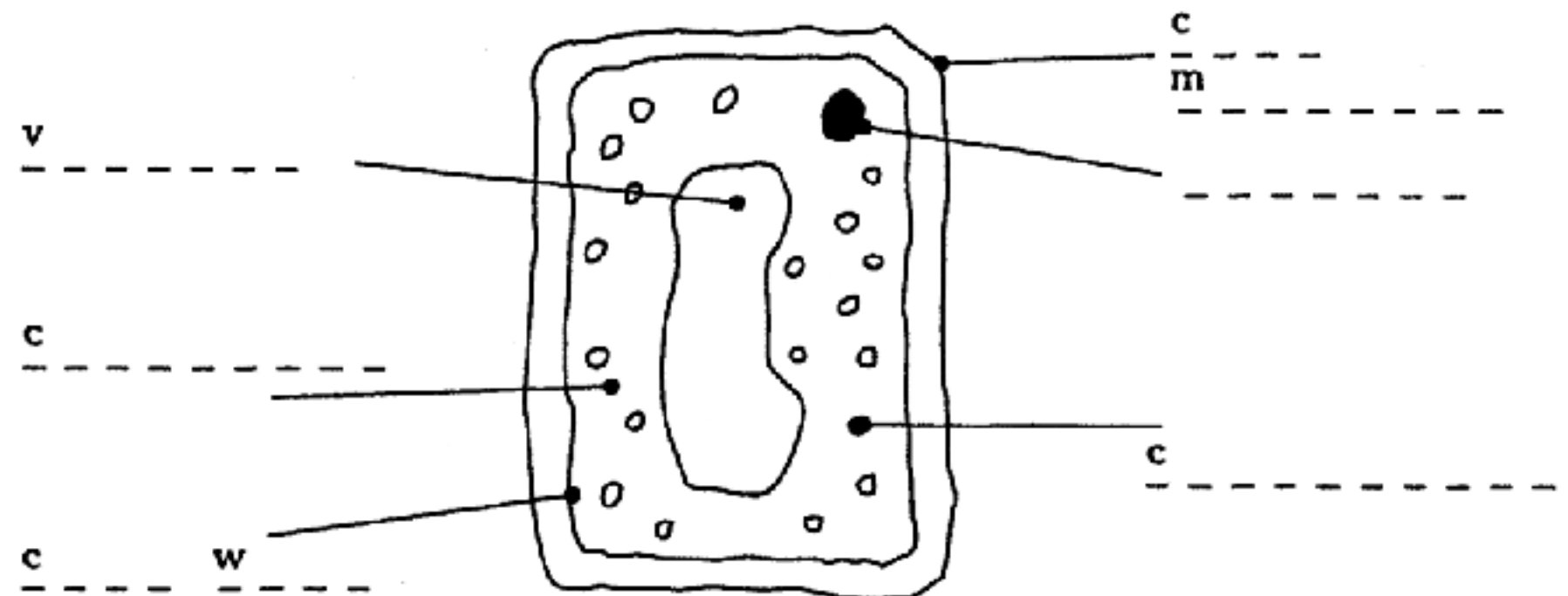


- Which part is like a thin skin around the cell? _____
- Which part controls the cell? _____

Plant cells

- Label the parts of this plant cell using the words in the box.

nucleus cell wall cytoplasm cell sap
vacuole cell membrane chloroplast

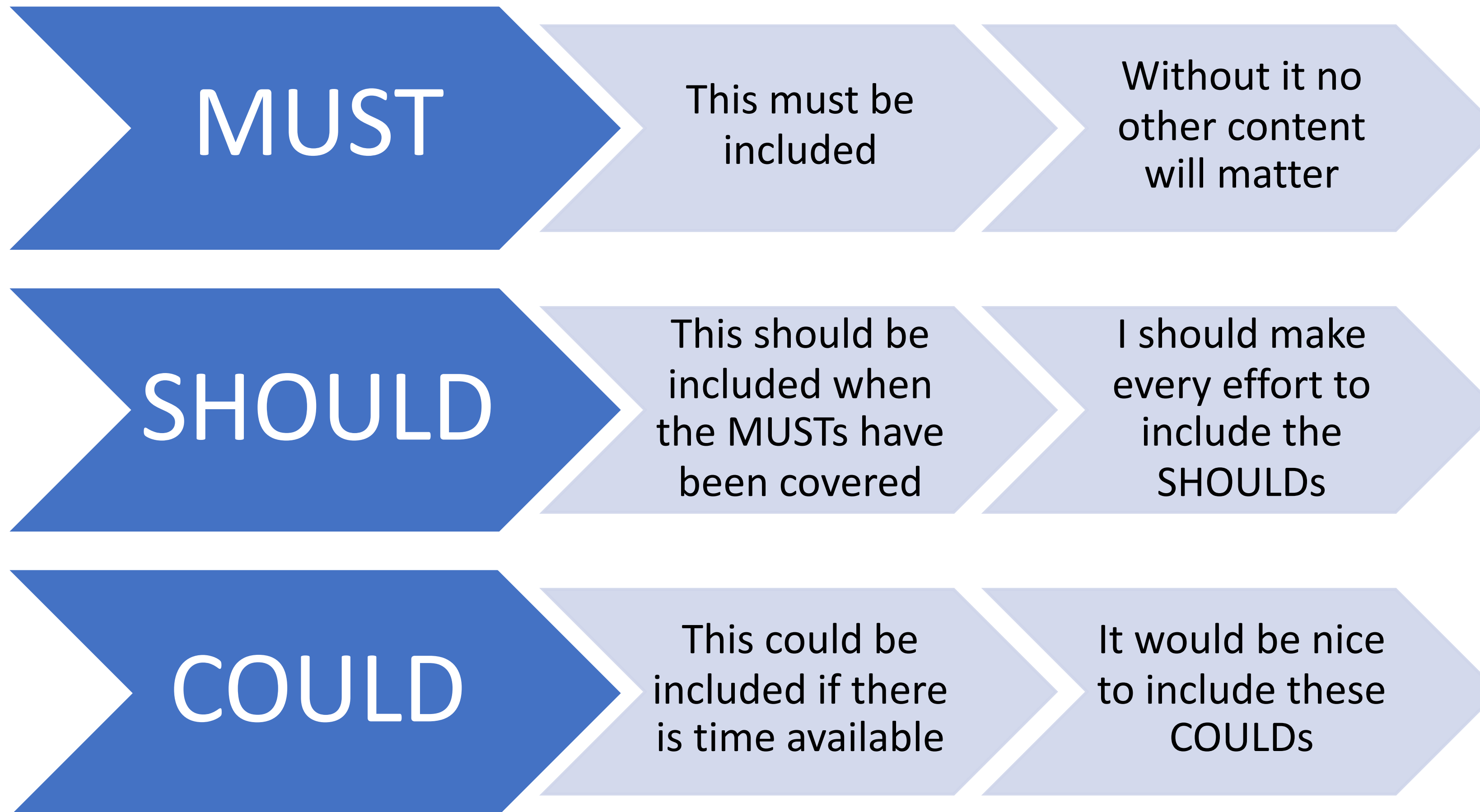


- Which three parts do plant cells and animal cells both have? n
c m c
- Which parts of a plant cell trap light energy? c
- What is kept in the vacuole? c s



Task

- **Must, Should, Could**



Resources

- Activities which involve resources available to extend the more able as well as support the low achiever. It means changing the resources by which students learn to meet their individual needs. A consideration of the following may be vital in preparation:
- Layout, design, graphics and readability of the resource.
- Using student-friendly storage and retrieval systems that will facilitate independent approaches to learning.
- Training the students to use a variety of resources independently
- Reducing the dependence on whole class texts as a source for teaching.
- Using a variety of mediums i.e. bigger, more striking implements, marker pens individual whiteboards and poster paper



Resources

- Challenge cards

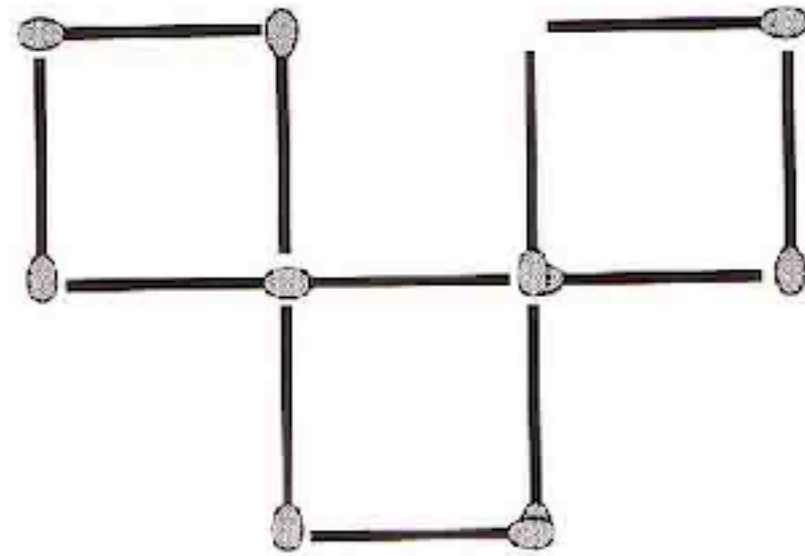


Resources

• Challenge cards

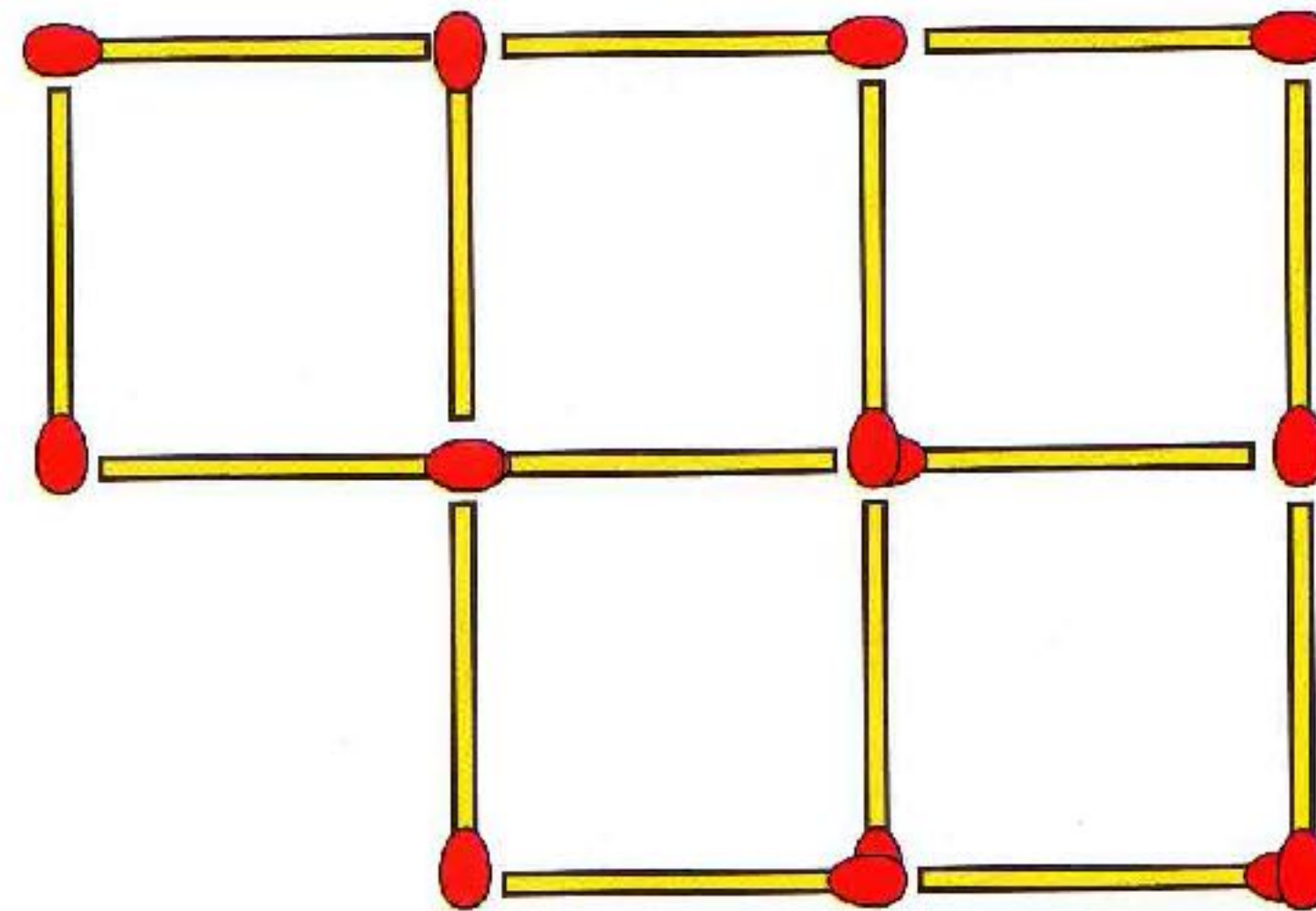
Page 54 ~ Meet Your Match

Take one match from the middle top row and the two matches which form the bottom right hand corner.

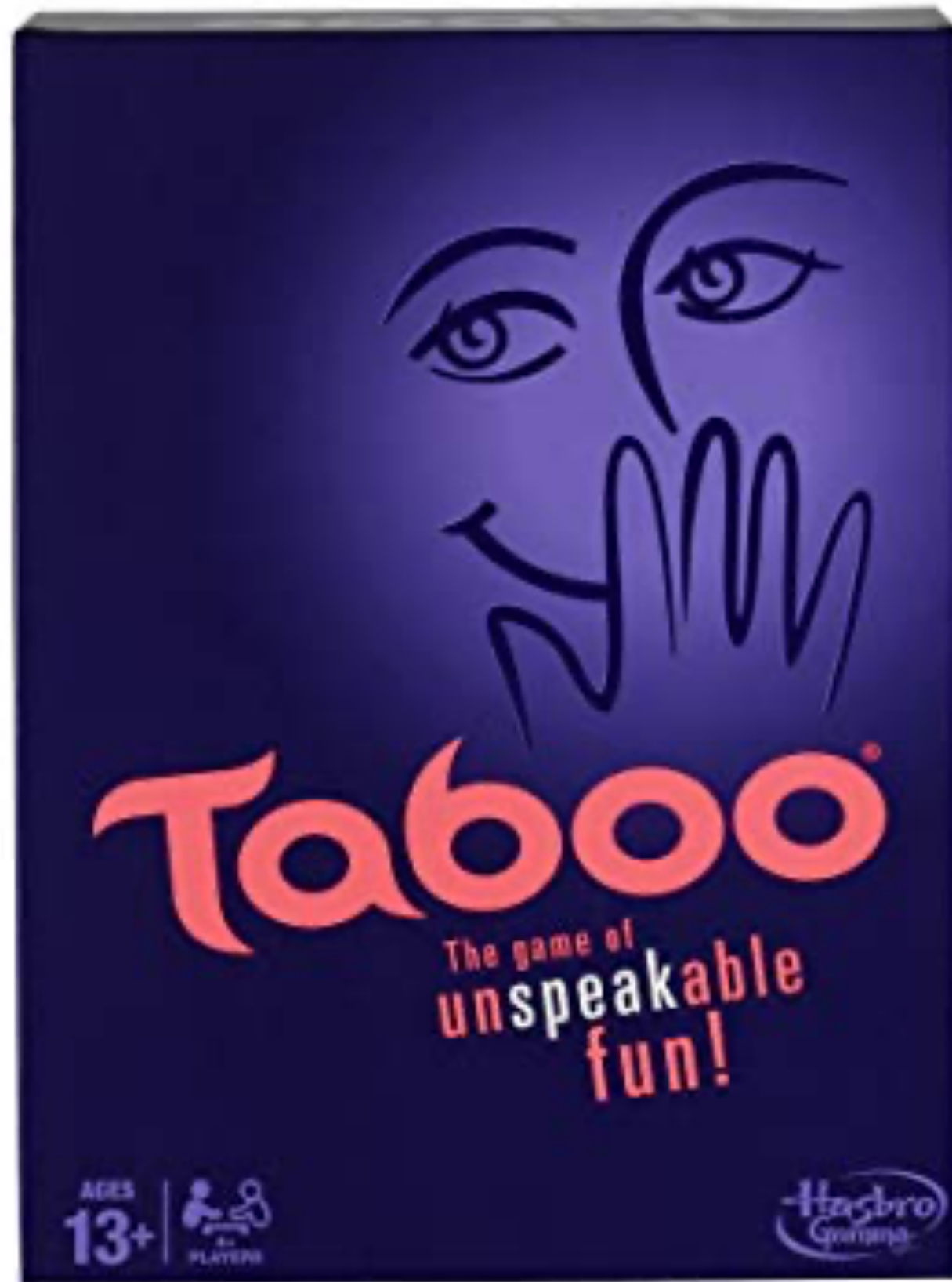


Meet Your Match

15 matches are laid on a table so as to form five equal squares. Remove three matches to leave only three squares.



Resources



Resources

- **RAG**



Resources

- **Bookmarks**



Year 6

Vocabulary bookmark

Probability

fair, unfair
likely, unlikely
likelihood

equally likely

certain, uncertain
probable

possible, impossible
chance, good chance,
poor chance, no chance

equal chance

even chance

fifty-fifty chance

risk, doubt

biased

random



Creating
Evaluating
Analyzing
Applying
Understanding
Remembering




Response ↻

- The response of the teacher / adult / fellow student is a form by which differentiation can be achieved. This is essential in cases where differentiation by outcome is planned as the teacher's written or spoken response will vary from student to student. **Marking** of a student's work is an important medium for differentiation by response.



Responce

3 Stars and a Wish



Responce

- Questioning



Responce

What have you learned about cells?

No.	Questions	Answers
1	What is the job of the nucleus?	R - Controls the cell Y - Supports the cell G - Catches light
2	Something that an animal cell does not have....	R - Nucleus Y - Cytoplasm G - Chloroplast
3	Something only a plant cell has....	R - Cell wall Y - Cytoplasm G - Nucleus
4	Where do chemical reactions happen in the cell..	R - Membrane Y - Cytoplasm G - Vacuole
5	Which part of the cell gives support to a plant and is made of cellulose?	R - Cell wall Y - Membrane G - Cytoplasm
6	Many of the same types of cell together is called..	R - Organ Y - Tissue G - Red blood cell
7	When a cell has special features to help it do its job it is called...	R - lucky Y - customised G - specialised



Outcome

- Students working on a common un-differentiated task will inevitably produce different outcomes to the task set, as long as the task is not too closed. These differentiated outcomes should be used primarily to assess and then inform our planning for differentiation in another way (task, resource, group, support).



Outcome



FOUNDED 1857
The Mackay School

Science Concept Cartoons®

Set 1 - Revised Edition

By
Stuart Naylor

and
Brenda Keogh



Published by



- Creating
- Evaluating
- Analyzing
- Applying
- Understanding
- Remembering



Outcome

A common misconception is that some materials have the property of making things warm. In this case because we put coats on to keep warm there is a tendency to believe that the coat will also make the snowman warm so that it will melt quickly. In fact the coat acts as an insulator, reducing the movement of heat in either direction. On a person it can keep the heat in, while on a snowman it prevents heat getting to the snowman. The snowman will therefore not melt easily while wearing a coat.

The situation can be investigated using real snow or ice. Water can be frozen inside plastic drinks bottles or plastic containers and used as model snowmen. An old glove or sock will make a model coat and allow the effect of the coat to be investigated. A useful extension is to investigate the effect of other factors such as the nature, colour and thickness of the coat



Outcome

Google 80/20



Outcome

- Create a 'to do' list for the students
- The list should contain a series of tasks: some that must be completed; some that should try and do; some to be done if they want an independent challenge.
- The list could be based on the unit of enquiry
- The students plan the order in which they carry out the tasks
- Ensure the tasks are varied - a mixture of paper and pencil, hands -on practical and technology based activities



Outcome



Fossil Fuel Power Station



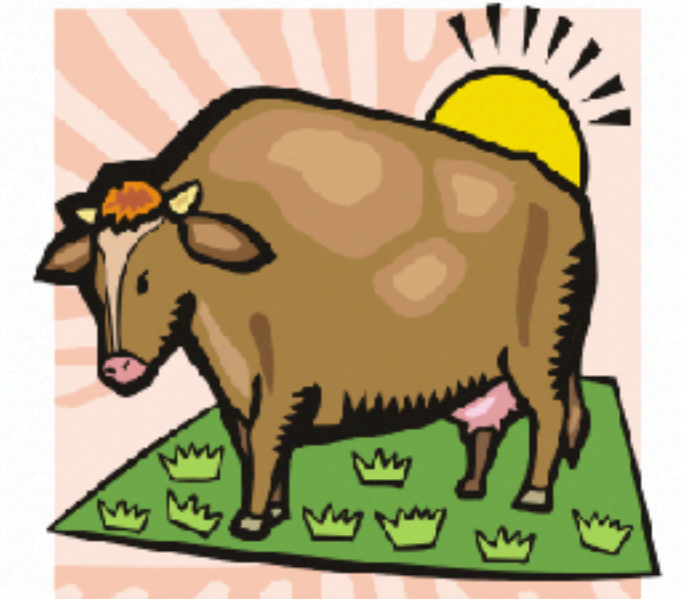
Energy produced	8
Pollution (<u>CO₂</u> , acid rain)	10
Start up cost	6
Running Cost	8
Renewable	No

Nuclear Power Station



Energy produced	8
Pollution (<u>Nuclear Waste</u>)	8
Start up cost	8
Running Cost	8
Renewable	No

Biomass



Energy produced	5
Pollution (<u>Carbon dioxide</u>)	5
Start up cost	5
Running Cost	1
Renewable	Yes

Group

- Differentiation by group is an important way to allow purposeful use of resources (including the other students in the group). Students could belong to semi-permanent groups within the larger teaching groups. The students will have a record of the groups to which they belong. The students need not necessarily be told how they are grouped.



Group

- **Jigsaw** - www.jigsaw.org



Expert



Group

- Think, Pair, Share



Six Types of Differentiation

- Task 
- Resources 
- Response 
- Outcome 
- Group 
- Support 



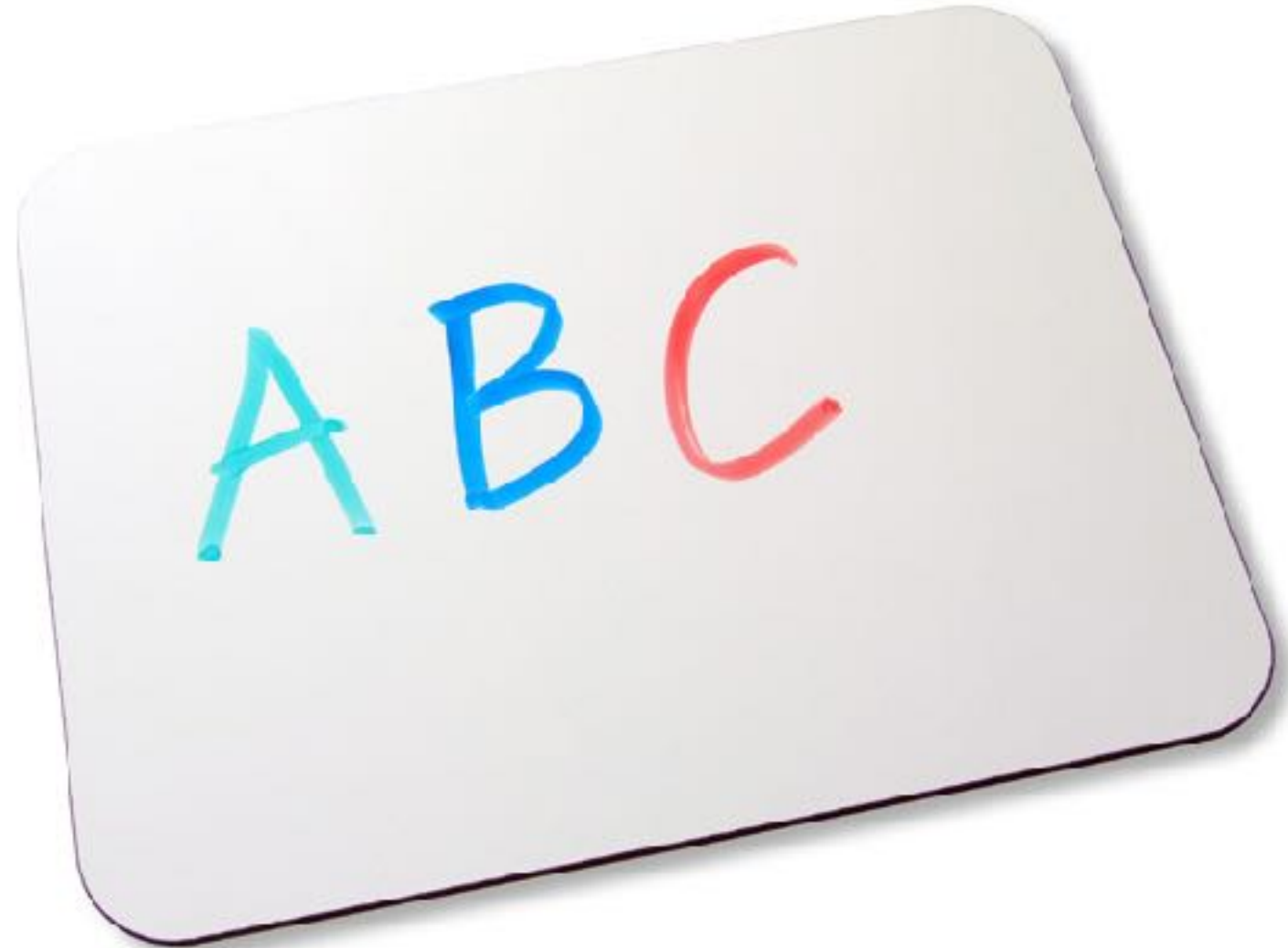
Support

- The different needs of the different students will inevitably mean that some students need greater support than others. There are a number of strategies that can provide that support. Using the skills of Teaching Assistants in the classroom to create a positive environment for learning would most certainly be one.



Support

- **C3B4Me** (see three before me)



Support

The five Bs:

- Brain
- Book
- Buddy
- Board
- Boss



Creating
Evaluating
Analyzing
Applying
Understanding
Remembering

What is Differentiation?

