# Assessing for Success

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# Science Education

- Science education is all about skills
- The most critical of them are the critical thinking skills, skills that are transferable

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# Higher Level Thinking Skills

- Tackling open-ended problems, among others, help impart and reinforce those skills
- Planning and conducting investigations into questions and observations without stock, or ready-made, answers is another way of doing the same
- So, as teachers we do provide opportunities for learning and reinforcing higher level thinking skills

# Assessment

- How do assess whether they have mastered those skills?
- How do we provide opportunities for students to demonstrate the mastery of those skills?
- The answer lies in the kind of questions we ask students to tackle

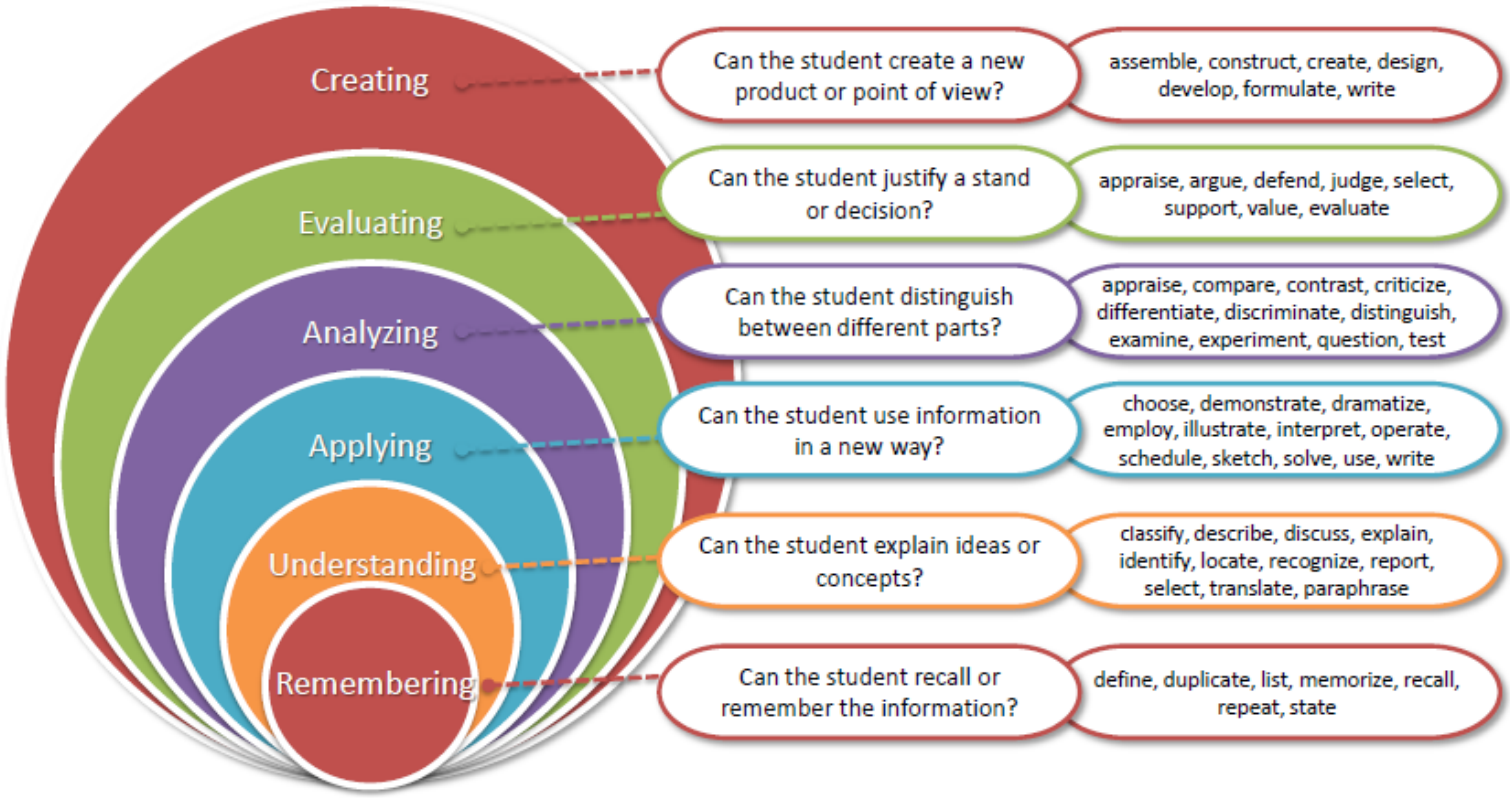
# The Activity

We'll do two things:

1. look at the skills the current grade 9 and 10 exam papers test
2. The kind of questions that provide students opportunities to demonstrate mastery of higher level thinking skills

- Before that, let's revisit Bloom's taxonomy again!

# Bloom's Taxonomy (Revised)




Source: http://pcs2ndgrade.pbworks.com/w/page/46897760/Revised%20Bloom's%20Taxonomy

# The Skill Details/ Questions Type

1. Remembering/Recall/Regurgitation:
   - Examples: recognizing (identifying), recalling (retrieving) facts, figures, definitions, processes etc.
2. Understanding/Comprehension:
   - Examples: Interpreting (clarifying, paraphrasing, representing, translating), exemplifying (illustrating, instantiating), classifying (categorizing, subsuming), comparing (contrasting, mapping, matching), etc.
3. Applying/Application:
   - Examples: Executing (carry out), implementing (using) etc.

# The Skill Details

4. Analyzing/Analysis:
   - Examples: differentiating (discriminating, distinguishing, focusing, selecting), organizing (finding coherence, integrating, outlining, parsing, structuring), attributing (deconstructing) etc.
5. Evaluating/Evaluation:
   - Examples: Checking (coordinating, detecting, monitoring, testing); critiquing (judging) etc.
6. Creating/Synthesizing:
   - Examples: generating (hypothesizing), planning (designing), producing (constructing).

# Task One

Take the A4 papers provided and tear them into two pieces lengthwise.

Then, on each of the 6 pieces, jot down one of the following:

- Remembering/Recall/ Regurgitation
- Understanding/Comprehension
- Applying/Application
- Analysis
- Evaluating/Evaluation
- Creating/Synthesizing

Then lay them on the big piece of paper in a row along the top (lengthwise) as if they were column headings in a table.

# Task Two

- You have been provided with grade 9 and 10 exam papers.
- Every question requires a student to demonstrate the mastery of one or more of the six skills
- What we'll do next:
  - cut up the examination paper into individual questions
  - identify what every question is testing
  - place it under the appropriate column of question type

# Task Three: Statistical Analysis

- If you are satisfied with your assignment, you can glue all the pieces of papers on the big sheet.
- After the task is complete, ask them to perform a simple statistical analysis of the exam paper and the percentage of each type of question

# Task Four

- Repeat tasks 1-3 with the other three exam papers, exam papers for a completely different curriculum

# Difference?

- What is the difference between the test papers?
- Why?

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