

# Constructing good tests

## What is a test?

A test is a set of questions with a time limit for completion. Its core purpose is to obtain information about learning. It can only provide a sample of learning.

Kindergarten students can be given a test that consists of one or two items where they have a reasonable amount of time to complete the items. The students' work is then assessed by the teacher. Some people describe that as assessing samples of student work. Other people describe that as giving a mini-test. It all depends on one's biases and perceptions of one's own biases. Whether a test is good or bad depends on its design, not its purpose or label.

## Qualities of a good test for middle years.

- \* The test should have a variety of test items: short response, long response, narrowly focussed, broadly focussed, skill acquisition, concept understanding, problem solving.

### Short response example.

A rectangle has an area of 20 square cm. Its height is 4 cm. What is its base?

### Long response example.

A rectangle has a perimeter of 40 cm. Can only one rectangle have this perimeter? Or can a number of rectangles have this perimeter? Explain your decision.

### Narrowly focussed example.

A question can belong to more than one category. Each of the above questions is an example of a narrowly focussed question.

### Broadly focussed example.

Explain the differences between length, area, and volume. Use examples in your explanation.

### Skill acquisition example.

What is  $23 \times 5$ ?

### Concept understanding example.

Explain what area means.

### Problem solving example.

A room in the shape of a rectangle has dimensions 4 m by 8 m. Carpet is going to cover the entire floor of the room. The carpet costs \$15 per square metre. It comes in rolls that are 3 metres wide. What is the cost of the carpet if carpet waste is included in the cost? Show your work. Include a diagram that helps explain your work.

- \* The test should have a few items that involve previous learning. This helps emphasize the point that learning is not a one-time affair and also gives students a chance to partly remedy previous less-than-desirable learning. [It is desirable that the previous learning being retested has some connection to the content focus of the test.]

Example of previous learning.

Suppose the content focus of the test is area (of triangles, rectangles, circles). A few questions about perimeter could also be on the test. Students would need to be forewarned about this.

- \* Some test items should be written as a narrative.

Example of narrative.

A narrative style of question will also be a long response and problem-solving question. The additional feature of a narrative is that it tells a story that requires the question responder to make a decision about what is correct and to explain why that decision was made. Here is an example:

*Harry claims that the smallest quotient for the division questions shown below is for the question  $4.9 \div 0.003$ . He argues that 0.003 is a very small number and division gives you an even smaller answer. Do you agree with Harry? Explain your thinking.*

- $4.9 \div 0.003$
- $4.9 \div 0.03$
- $4.9 \div 0.3$
- $4.9 \div 3$

- \* Some test items should allow students to explain in their own words what they understand.

Example of explanation.

Explain how you can figure out the area of a triangle.

- \* The test should provide choice.

Comment.

Any test is a sampling of the content area (not practical to ask everything). Therefore when a student prepares for a test, he/she may get “unlucky” as to what to content to study/get ready for. Choice provides the learner with a better opportunity to show what he/she knows as it reduces the role of “luck” somewhat.

- \* The test should have clear instructions.

Comment.

Confusing instructions lead to suspect assessment of learning.

\* The test should emphasize thinking, not regurgitation.

Comment.

While some regurgitation (recall of something) should be part of a test, the emphasis should be on understanding not recall of definitions, procedures, etc.

\* The test should provide meaningful feedback for both students and teacher.

Comment.

Easy to say, but not necessarily easy to accomplish. Meaningfulness depends to a large degree on the attitude towards learning that the teacher has managed to instill in students.