

## Helping Kids Learn – Post #22 1/4/21

# STEM: Measuring What You Know

Regardless of where you land on the tests-are-worthwhile – tests-are-a-waste-of-time continuum, it is helpful to know what you know and what you don't. To that end, we've compiled a list of online STEM assessments that may inform or at least entertain your family. We hope you enjoy them.

These are suggestions only and no endorsement is implied. Although they have been screened for appropriateness before posting, adults should vet any websites children use, as they may change over time.

## How well do you know STEM?

### Science

Pew Research Center Science Knowledge Quiz Online (two of the 11 are math questions); completing the quiz also contributes to their research; no identification or registration, feedback at the end of the quiz <https://www.pewresearch.org/science/quiz/science-knowledge-quiz/>

Collection of knowledge-level\* quizzes with your score compiled at the end <https://www.triviaplaza.com/science-general-quizzes/>

Short quiz on a range of science subjects; score and correct response at the end of each answer and affirmation at the end <https://www.buzzfeed.com/audreyworboys/graduate-level-science-test-scientist-trivia-quiz?bfsource=bfocompareon>

Kid-friendly quizzes on specific science, geography and other topics; open-ended\*\* with answers at the bottom; you do your own scoring <https://sciencekids.co.nz/quizzes.html>

### Technology

Range of kid-friendly topics; open-ended\*\* with answers at the end; you do your own scoring <https://sciencekids.co.nz/quizzes/technology.html>

Wide-ranging technology topics and contemporary knowledge; multiple-choice with answers at the end; correct answers are explained <https://www.investintech.com/resources/blog/tech-quiz/>

Pub-quiz-style questions designed for families <https://www.radiotimes.com/technology/2020-04-23/pub-quiz-technology/>

## Engineering

This quiz is not about knowledge; it is interest-based and designed to tell kids what branch of engineering fits their interests; only 4 questions; information at the end  
<https://www.dk.com/uk/article/engineering-quiz-for-kids-which-type-of-engineer-would-you-be/>

Knowledge-level\*, open-ended\*\* engineering topics accessible to most students in 5<sup>th</sup> grade and beyond; answers appear at the bottom; you do your own scoring  
<https://sciencekids.co.nz/quizzes/engineering.html>

## Mathematics

Many quizzes for topics from Counting through Calculus; immediate feedback and useful tutorials at a link from the homepage <https://www.mathopolis.com/questions/quizzes.php>

**Lift the Level!** You can make any quiz deeper and/ or suitable for older students by the following:

**Understanding Bloom's Taxonomy** – Not all quiz questions are created equal. A quiz can ask for simple recall of knowledge\* or probe for deeper understanding. Most online quizzes fall into the former category because such items are the easiest to score – you're either right or wrong.

In order to give a structure to levels (depths) of cognitive functioning, Benjamin Bloom, an educational psychologist who researched academic achievement and giftedness, and others developed a hierarchy of learning objectives according to the complexity of thought they required. It is known as *Bloom's Taxonomy* and has been in use for more than half a century to identify and improve learning outcomes.

The developers of Bloom's Taxonomy also identified specific verbs whose actions are associated with levels of thought.

The most superficial level is the **\*Knowledge (Remember) Level** which deals with learning and recalling facts. Some verbs associated with this level include *select, list, label, and identify*.

Even recall of information can be made more challenging by the way in which questions are asked. For example, the question on the left is easier to answer than the question on the right even though both are asking for the same answer!

**EASIER TO ANSWER** (you can guess or eliminate some choices)

An atom is \_\_\_\_.

- the smallest unit of ordinary matter
- composed of molecules
- a metal or near-metal
- the same as a quark

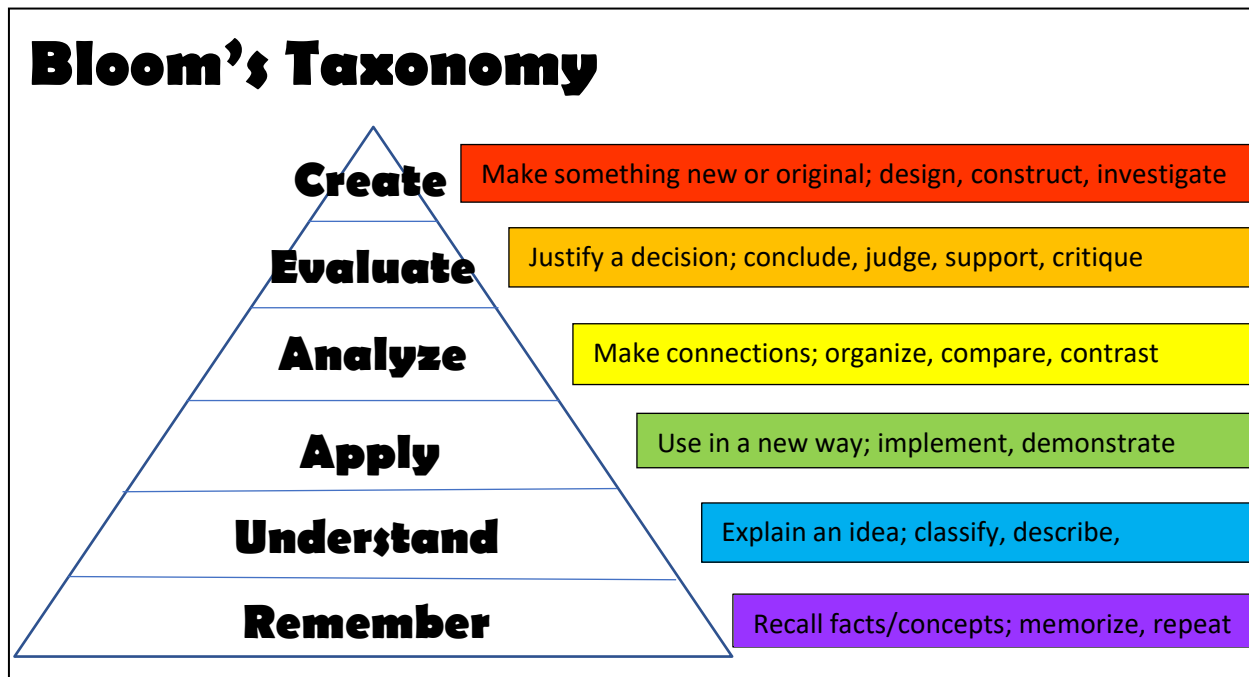
16 + 27 = \_\_\_\_    a) 37    b) 33    c) 43    d) 46

**HARDER TO ANSWER** (you have to know it or how to figure it out) \*\*They are open-ended.

An atom is \_\_\_\_.

16 + 27 = \_\_\_\_

You can deepen understanding through the use of any of the higher levels shown in this pyramid:



**NJ Student Learning Standards** The quizzes listed above cover a range of subjects and are not correlated to specific learning outcomes. To view the New Jersey Student Learning Standards, please see any of the following. The presentation is very different for each subject because they were developed by different teams of educators with expertise in each content strand, seemingly without overall systematization.

**Science** <https://www.state.nj.us/education/cccs/2016/science/> Topics shown are live links.

**Technology** <https://www.state.nj.us/education/cccs/2014/tech/> and <https://www.state.nj.us/education/aps/cccs/tech/additional.htm>; also embedded in content strands such as science, mathematics, and 21<sup>st</sup> Century Life and Careers <https://www.state.nj.us/education/cccs/2014/career/>

**Engineering** Embedded in content strands such as science and mathematics and 21<sup>st</sup> Century Life and Careers Standards <https://www.state.nj.us/education/cccs/2014/career/>

**Mathematics** <https://www.nj.gov/education/cccs/2016/math/standards.pdf>