Recommended Achievement Standards

Grade 10

• Mathematics
• Reading/Literature
• Science

Oregon Department of Education
Office of Assessment and Information Services
January 2007
Grade 10 Achievement Standards

This booklet provides sample test items for the newly recommended Achievement Standards in Reading/Literature, Mathematics and Science at Grade 10. They represent the types of items students would need to be able to answer correctly in order to reach the “cut score” for meeting the standard. Similar items may be found on sample tests for the other grade levels at http://www.ode.state.or.us/search/results/?id=226

The State Board of Education will receive public input on the recommended Achievement Standards prior to making a decision to adopt them at the March State Board Meeting.

A chart showing the existing scores and the recommended scores is printed on the reverse of this page.

You can view a video about the process for developing the Recommended Achievement Standards, get more information, and fill out a survey with your comments for the State Board of Education by going to http://www.ode.state.or.us/search/page/?id=849
Comparison of Recommended Scores for Reading, Mathematics and Science Based on Dec. 11-13 Achievement Standards Setting Meeting

### Reading/Literature

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1

Woo has been asked to measure the perimeter of his desk. He finds it to be 2.632 meters. The degree of accuracy of this measurement is:

A. \(\frac{1}{10000}\) m  
B. \(\frac{1}{1000}\) m*  
C. \(\frac{1}{100}\) m  
D. \(\frac{1}{10}\) m

2

In a certain animal population, \(\frac{1}{10}\) of babies are born with mutations. Which of the following would be most appropriate to create a simulation representing this fact?

A. Draw one cube at random out of 10 cubes, one of them marked with x’s on all sides.*
B. Collect 10 animal babies.
C. Use 10 dice with a roll of one on any die resulting in mutation.
D. Drop 10 coins with the “tail” on any coin resulting in mutation.

3

Given parallelogram ABCD and

\[ m \angle A = m \angle C = 3x + 12 \]
\[ m \angle B = 3x - 84 \]
\[ m \angle D = x \]

Find the value of x.

A. 21  
B. 42*  
C. 84  
D. 138
FOX’S FLAPDOODLE

Today’s media is often accused of “playing with the facts” to lure viewers and readers to watch programs or read magazines. This article, which appeared in SCIENTIFIC AMERICAN magazine, gives author Michael Shermer’s view of a program shown on a Fox television broadcast.

The price of liberty is, in addition to eternal vigilance, eternal patience with the vacuous blather occasionally expressed from behind the shield of free speech. It is a cost worth bearing, but it does become exasperating, as when the Fox Broadcasting Company aired its highly advertised special “Conspiracy Theory: Did We Land on the Moon?” NASA, viewers were told, faked the Apollo missions on a movie set.

Such flummery should not warrant a response, but in a free society, skeptics are the watchdogs against irrationalism—the consumer advocates of ideas.

Debunking is not simply the divestment of bunk; its utility is in offering a better alternative, along with a lesson on how thinking goes wrong. The Fox show is a case study, starting with its disclaimer: “The following program deals with a controversial subject. The theories expressed are not the only possible explanation. Viewers are invited to make a judgment based on all available information.” That information, of course, was not provided, so let’s refute Fox’s argument point by point in case the statistic at the top of the show—that 20 percent of Americans believe we never went to the moon—is accurate.

Claim: Shadows in the photographs taken on the moon reveal two sources of light.

Answer: Setting aside the inane assumption that NASA and its co-conspirators were too incogitant to have thought of this, there are actually three sources of light: the sun, the Earth (reflecting the sun) and the moon itself, which acts as a powerful reflector, particularly when you are standing on it.

Claim: The American flag was observed “waving” in the airless environment of the moon.

Answer: The flag waved only while the astronaut fiddled with it.

Claim: No blast crater is evident underneath the Lunar Excursion Module (LEM).

Answer: The moon is covered by only a couple of inches of dust, beneath which is a solid surface that would not be affected by the blast of the engine.
Claim: When the top half of the LEM took off from the moon, there was no visible rocket exhaust. The LEM instead leaped off its base as though yanked up by cables.

Answer: First, the footage clearly shows that there was quite a blast, as dust and other particles go flying. Second, without an oxygen-rich atmosphere, there is no fuel to generate a rocket-nozzle flame tail.

Claim: The LEM simulator used by astronauts for practice was obviously unstable—Neil Armstrong barely escaped with his life when his simulator crashed. The real LEM was much larger and heavier and thus impossible to land.

Answer: Practice makes perfect, and these guys practiced. A bicycle is inherently unstable, too, until you learn to ride it. Also, the moon’s gravity is only one sixth that of the Earth’s, so the LEM’s weight was less destabilizing.

Claim: No stars show in the sky in the photographs and films from the moon.

Answer: Stars don’t routinely appear in photography shot on the earth, either. They are simply too faint. To shoot stars in the night sky, even on the moon, you need to use long exposures. The no-moonie mongers go on and on in this vein, weaving narratives that include the “murder” of astronauts and pilots in accidents, including Gus Grissom in the Apollo I fire before he was about to go public with the hoax. Like most people with conspiracy theories, the leading naysayers have no positive supporting evidence, only allegations of cover-ups. I once asked G. Gordon Liddy (who should know) about conspiracies. He quoted Poor Richard’s Almanack: “Three people can keep a secret if two of them are dead.” To think that thousands of NASA scientists would keep their mouths shut for years is risible rubbish.

1

Based on the information in the article, what does the word Flapdoodle in the title most likely mean?

A. Mistake
B. Controversy
C. Information
D. Nonsense*

2

“Flummery” is a type of sweet dessert or soft jelly. Its use in the passage is an example of

A. irony to emphasize the arguments in opposition to Fox’s claims.
B. personification of a substance not usually given human characteristics.
C. a metaphor for the appeal and lack of substance of Fox’s program.*
D. a simile comparing the Fox program to other conspiracy shows.
3
According to the author, Michael Shermer, the role of skeptics is
A. “...offering a better alternative, along with a lesson on how thinking goes wrong.”
B. to have “patience with the vacuous blather occasionally expressed from behind the shield of free speech.”
C. to be “the watchdogs against irrationalism—the consumer advocates of ideas.”*
D. to “make a judgment based on all available information.”

4
What is the author’s main issue with the claims made by the Fox program?
A. They violate the Constitutional right to free speech.
B. They fail to take into account alternate explanations.*
C. They make too many claims to explore each one fully.
D. They did not allow NASA to respond during the program.

Science Grade 10

1
Which of the following aspects of electromagnetic radiation best explains why electromagnetic radiation is both useful and harmful to humans?
A. Electromagnetic radiation travels at the speed of light.
B. Electromagnetic radiation can travel through a vacuum.
C. Electromagnetic radiation is energy and can interact with matter.*
D. Electromagnetic radiation can be described in terms of both wavelength and frequency.

SURFER

A surfer paddles out from shore in search of the perfect wave. The surfer has a weight of 500 N and the surfboard weighs 100 N.

2
When the surfer is on a surfboard floating on calm water, what is the buoyant force pushing up on the board?
A. 100 Newtons
B. 400 Newtons
C. 500 Newtons
D. 600 Newtons*
VINEGAR AND BAKING SODA EXPERIMENT

Sam and Jordan are studying the reaction between vinegar and baking soda. They already know that when vinegar and baking soda are mixed a vigorous reaction produces a lot of bubbles and that the baking soda seems to disappear during the reaction. During a class discussion, the students figured out that the equation for the reaction is:

\[
\text{Vinegar} + \text{Baking Soda} \rightarrow \text{Carbon Dioxide} + \text{Water} + \text{Sodium Acetate}
\]

\[
\text{CH}_3\text{COOH} + \text{NaHCO}_3 \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Na(CH}_3\text{COO)}
\]

Sam and Jordan measure 50 mL of vinegar and pour it into a flask. Then they weigh out 10 g of baking soda. Sam starts the stopwatch when Jordan dumps the baking soda into the flask, then Jordan gently swirls the flask while Sam watches to see when the last bubbles are given off by the reaction. They have determined that the reaction takes 30 sec. under these conditions.

3

If Sam adds 5 g of baking soda, rather than the 10 g that was used in the first trial, the change in the experiment will

A. decrease the reaction time, and the bubbles will stop in less than 30 seconds.*
B. increase the reaction time and the bubbles will continue for more than 30 seconds.
C. have NO effect on the speed of the reaction and the bubbles will stop in 30 seconds.
D. be impossible to be predicted, given this information.