

# Light Grade 7 Lab Practical

## Teacher's Answer Key

This is your chance to see how well your students have picked up on important key concepts, and if there are any holes. Your students also will be working on their homework assignment as you do this test individually with the students.

### Materials:

- scissors
- tape
- pencil
- two handheld magnifier with concave lenses
- two convex lenses
- plain paper
- apple
- red and green gummy bear
- red laser
- flashlight
- glass of water
- coin
- five dollar bill



**Lab Practical:** Ask the student *Note: Answers given in italics!*

You will demonstrate two of the following:

1. The Lincoln Memorial has the names of 48 states carved into the two roof levels, but we can only see one side of the building on the five dollar bill. Is your state one of them? Design and run an experiment to answer this question.
  - a. *Refer to "Simple Microscope" experiment. Students make a compound microscope by stacking two concave lenses on top of each other, separated by 2-5" and look through both and adjust the spacing to bring the dollar bill into focus.*
2. Design an experiment that shows why an apple is red.
  - a. *Students explain that the apple is red because the apple absorbed all colors of the incoming white light but only reflects back red, so we see red. Shine a flashlight through a red gummy bear and you see red light coming out the back in a diffuse pattern. Shine a red laser through a red gummy bear and you see a spot of red coming out the back. Shine a red laser through a green gummy bear and nothing comes out the back because the gummy bear only reflects (or allows to transmit) green light.*
3. Drop a coin into a glass of water and find the viewing location where it looks like there are 2 coins in the jar. Explain what's going on.
  - a. *Refer to "Light Tricks" experiment. When light strikes a surface, part of the beam passes through the surface and the rest reflects back, and where it bounces back depends on where you're looking from. Light also changes speeds as it crosses from one medium to another, so if you were to stick a pencil in the jar, it would look broken from one angle and whole from another.*

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## Student Exam

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**Lab Practical:** You will demonstrate two of the following:

1. The Lincoln Memorial has the names of 48 states carved into the two roof levels, but we can only see one side of the building on the five dollar bill. Is your state one of them? Design and run an experiment to answer this question.
2. Design an experiment that shows why an apple is red.
3. Drop a coin into a glass of water and find the viewing location where it looks like there are 2 coins in the jar. Explain what's going on and draw the jar and coin with the path the light takes to get to your eye below.