

## 3.7: Thinking About the Material

---

### 3.7.1: Reflect and research

1. Look up the depth of a competition diving pool. What is the relationship between the height of the diving platform and the minimum pool depth? Why? If the designers of the pool assumed that every diver drops straight down off the diving board, would the pool still be safe for divers that jump up first?
2. When did Galileo Galilei first describe his principles of Galilean Relativity?
3. In Galileo's "Dialogue Concerning the Two Chief World Systems", what example did he use to describe relative motion?
4. Imagine that you are a judge, trying to charge an irresponsible driver for speeding on the highway. In the courtroom, he argues that in his own frame of reference, he was sitting still with respect to his car. In fact, he says that it was the officer, parked on the side of the highway that was speeding. You realize that in his reference frame, he is indeed correct - but that's not what matters! How do you explain the relative motion of driving laws to this sneaky offender, in order to serve him justice?

### 3.7.2: To try at home

1. Find a way to measure the value of  $g$  (the acceleration from Earth's gravity) and describe what you did.

### 3.7.3: To try in the lab

1. Measure the value of  $g$  (the acceleration from Earth's gravity) by measuring the time it takes for an object to drop from different heights. Analyze your data in way that you perform a linear fit to your data and determine  $g$  from the slope of that fit.

---

This page titled [3.7: Thinking About the Material](#) is shared under a [CC BY-SA 4.0](#) license and was authored, remixed, and/or curated by [Ryan D. Martin, Emma Neary, Joshua Rinaldo, and Olivia Woodman](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.

- **3.6: Thinking About the Material** by Ryan D. Martin, Emma Neary, Joshua Rinaldo, and Olivia Woodman is licensed [CC BY-SA 4.0](#).  
Original source: <https://github.com/OSTP/PhysicsArtofModelling/blob/master/README.md>.