

7.7: Thinking about the material

7.7.1: Reflect and research

1. When was the concept of work first introduced?
2. To construct the pyramids, the ancient Egyptians used simple machines, like levers, to accomplish tasks that would not be possible otherwise. Apply what we know about work to find out how levers help people lift incredibly heavy objects.
3. After an accident, investigators use skid marks to figure out how fast the cars were going before the crash. Use your knowledge of work, figure out how they do this.
4. The Tesla Model S can accelerate from 0 – 100km/h in as little as 2.7 seconds. Calculate the power of the car in horsepower. Why is it unusual for a 7 seat sedan, like the Model S, to have such a short acceleration time? Investigate how it's possible for the Tesla to accelerate so quickly.

7.7.2: To try at home

1. Measure the power that you can output with your legs, and describe how you made the measurement.

7.7.3: To try in the lab

1. Propose an experiment to measure the thermal energy associated with a force of kinetic friction.
2. Propose an experiment to test the Work-Energy Theorem.

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