



Student Handout

The following document contains the answers to the *Student Handout* on page 2 and a *Student Handout* that can be printed out and given to students on page 3.

If students do not have access to a balance and a ruler, assume the following masses and dimensions for the ninth domino and cereal box:

Mass of domino: 4.5 kg

Thickness x Width x Height of domino: 25 mm x 127 mm x 257 mm

Mass of cereal box: 85 g

Thickness x Width x Height of cereal box: 6cm x 18cm x 39cm



a WOW Lab

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Tumbling Dominoes - Handout Answers

Student Handout - Answers

In groups of 3 to 4 students, complete the following questions:

1) Find the centre of mass of the ninth domino.

The centre of mass of an object of uniform mass is at its geometric centre. In the case of the ninth domino, using WOW Lab dimensions, it would be at a point 129 mm from the ground, 64 mm from the side of the domino, and 13 mm deep.

2) What is the gravitational potential energy of the ninth domino?

The equation for gravitational potential energy is $U_g = mgh$

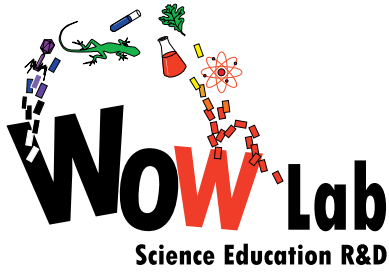
The ninth domino in the WOW Lab set weighs 4.5 kg and we use the centre of mass of height for h

$$U_g = mgh = (4.5 \text{ kg})(0.129 \text{ m})(9.81 \text{ m/s}^2) = 5.7 \text{ J}$$

3) What is the gravitational potential energy of one cereal box?

The cereal box chosen weighs 85 g

$$U_g = mgh = (0.085 \text{ kg})(0.145 \text{ m})(9.81 \text{ m/s}^2) = 0.121 \text{ J}$$



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Tumbling Dominoes - Student Handout

Student Handout

In groups of 3 to 4 students, complete the following questions:

- 1) Find the centre of mass of the ninth domino.
- 2) What is the gravitational potential energy of the ninth domino?
- 3) What is the gravitational potential energy of one cereal box?