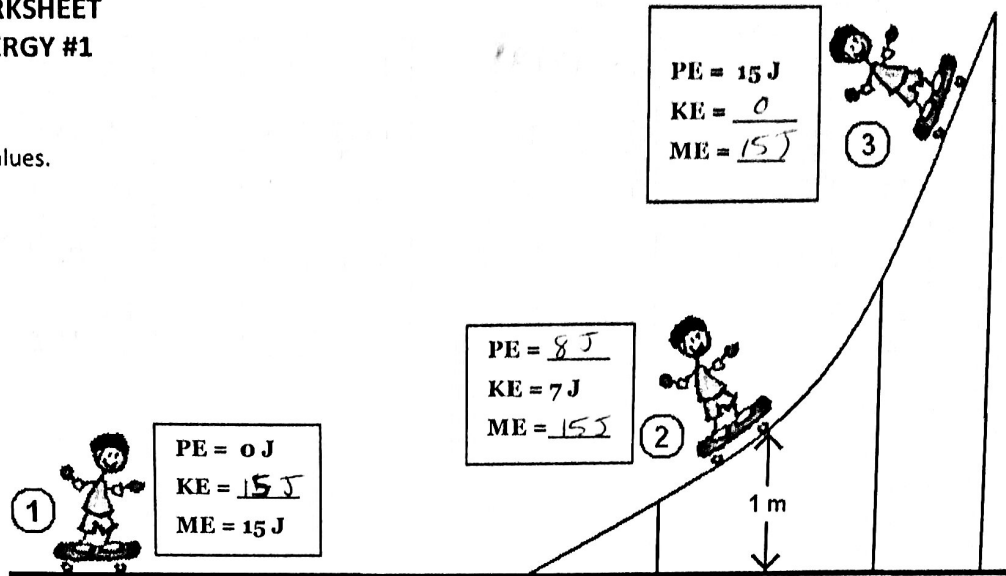
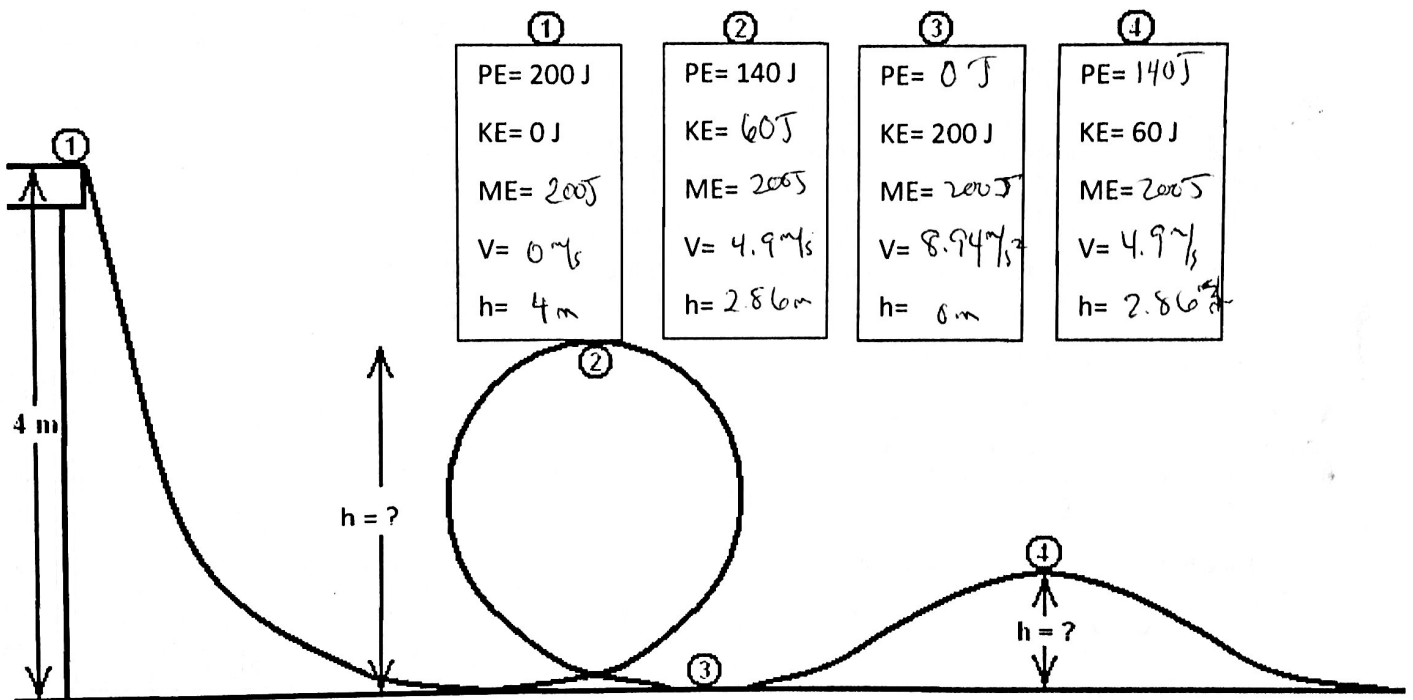


# PHYSICAL SCIENCE WORKSHEET CONSERVATION OF ENERGY #1

1. Fill in the missing values.



2. Fill in the missing values.  $m=5\text{kg}$ .



3. A 1.8 kg book has been dropped from the top of the football stadium. Its speed is 4.8 m/s when it is 2.9 meters above the ground. What is its mechanical energy?

$$71.89 \text{ J}$$

4. A 28 kg child on a swing is traveling at 4.2 m/s. What is his potential energy if he has 315 J of mechanical energy? What is his height above the ground?

$$PE = 68.04 \text{ J}$$

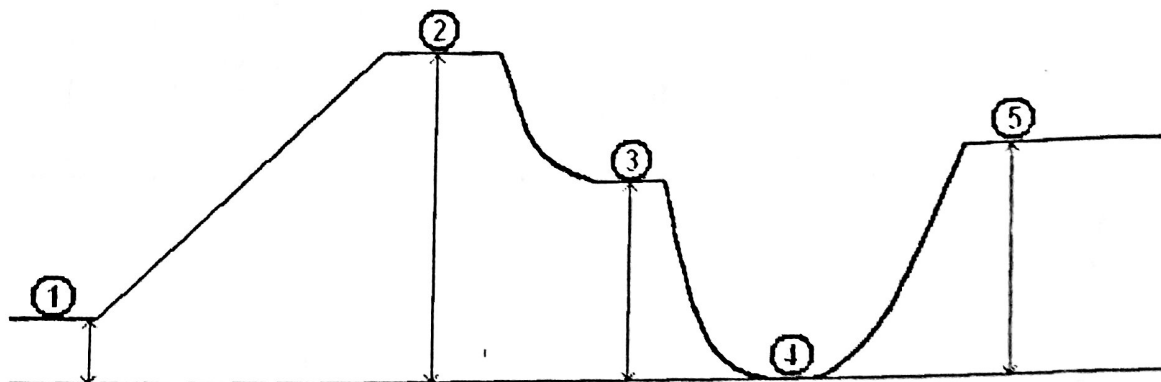
$$h = 0.25 \text{ m}$$

5. Identical twins Rick and Chris are painting a house. Rick is standing on the scaffolding 5 meters above the ground. Chris is standing on the scaffolding 5 meters above Rick. Who has more potential energy? Explain.

Chris  $\rightarrow$  2x the height

6. Fill in the missing values.  $m=2\text{kg}$

①	②	③	④	⑤
PE = 39.2 J	PE = 199.75 J	PE = 98 J	PE = 0 J	PE = 137.2 J
KE = 160.8 J	KE = 0.25 J	KE = 102 J	KE = 200 J	KE = 62.8 J
ME = 200 J	ME = 200 J	ME = 200 J	ME = 200 J	ME = 200 J
V = 12.68 m/s	V = 0.5 m/s	V = 10.1 m/s	V = 14.14 m/s	V = 7.97 m/s
h = 2 m	h = 10.19 m	h = 5 m	h = 0 m	h = 7 m



7. John has 200 Joules of potential energy when he is standing on a diving board.

a. Find his mechanical energy.

200 J

b. John jumps off the diving board. What is his potential energy when he is halfway to the water?

100 J

c. What is his mechanical energy when he lands in the water?

200 J

8. A ball has a 17 J of kinetic energy and its mechanical energy is 25 J.

a. Find the potential energy of the ball.

8 J

b. If the ball has a mass of 3.2 kg, what is its height above the ground?

0.27 m

c. What is the speed of the ball?

3.26 m/s

9. What is the mass of a child that has a KE of 400 J who is riding her bike at 3.9 m/s?

52.6 kg

10. Jared and Clay are climbing the stairs. Jared gets tired and stops halfway to the fourth floor. Clay makes it to the fourth floor without a problem. If Jared is twice as heavy as Clay, who has more potential energy? Explain.

Same  $\rightarrow PE_J = (2m)g(\frac{1}{2}h)$   $PE_C = mgh$