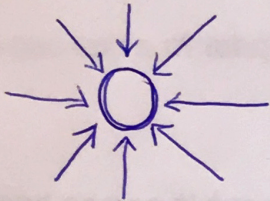


U3:LI Questions

1. What is a gravitational field?

A gravitational field is a region of space around a massive object where objects experience it's gravitational force.

2. Draw a diagram of Earth's gravitational field:



3. What is the acceleration due to gravity on Earth?

$$g = 9.8 \text{ m/s}^2$$

4. Ms. Burns drops a pumpkin off the roof of her house (neglect air resistance). The pumpkin takes 2.0 seconds to reach the ground. How fast was it travelling the instant it hit the ground?
How high did she drop it from?

$$\vec{v} = \vec{a} (\Delta t)$$

$$\vec{v} = 9.8 \text{ m/s}^2 (2 \text{ s})$$

$$\vec{v} = 19.6 \text{ m/s}$$

$$\Delta d = \frac{1}{2} \vec{a} \Delta t^2$$

$$\Delta d = \frac{1}{2} (9.8 \text{ m/s}^2) (2 \text{ s})^2$$

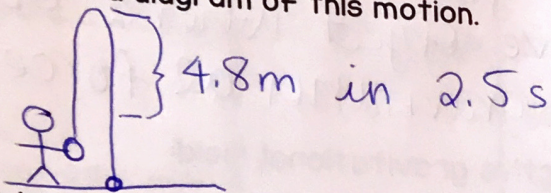
$$\Delta d = \frac{1}{2} (9.8 \text{ m/s}^2) (4 \text{ s}^2)$$

$$\Delta d = 19.6 \text{ m}$$

← New Equation
from page 4

5. Clayton throws a basketball upwards. After 2.5 seconds it reaches its maximum height. It travels 4.8 meters above Clayton's hand, before falling back down.

a) Draw a diagram of this motion.

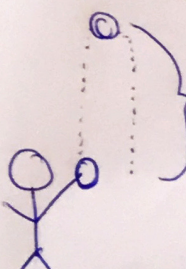


b) What is the velocity of the basketball at its peak?

$$0 \text{ m/s} \downarrow$$

c) How fast is the basketball travelling the moment it comes back down into Clayton's hand?

★ think only about DOWNWARD motion (starting from REST @ peak)



$$\begin{aligned} \vec{v}_0 &= 0 \text{ m/s} \\ \vec{v}_f &= \underline{\hspace{2cm}} \\ \Delta t &= 2.5 \text{ s} \\ \vec{a} &= 9.8 \text{ m/s}^2 \end{aligned}$$

$$\begin{aligned} \vec{v} &= \vec{a} (\Delta t) \\ \vec{v} &= 9.8 \text{ m/s}^2 (2.5 \text{ s}) \end{aligned}$$

$$\vec{v} = 24.5 \text{ m/s}$$

6. Fill in the following diagram:

