Around the World with Newton's 1st Law

Guidelines/Rules

- **Each pair is assigned a number, find your card with that number and start at that question.**
- When the time is up move onto the next question – even if you're not done with that question (but at least write down the information so you can solve it later).
- Remain at the desk that your group should be on – so only 1 group should be at each question.

Question 1

- Calculate the weight of a 14 kg pumpkin in Newtons and pounds.

Question 2

- The head of an bloody axe is loose and you wish to tighten it by banging it against the top of a rock. Why is better to hold the axe with the handle down, rather than with the head down?

Question 3

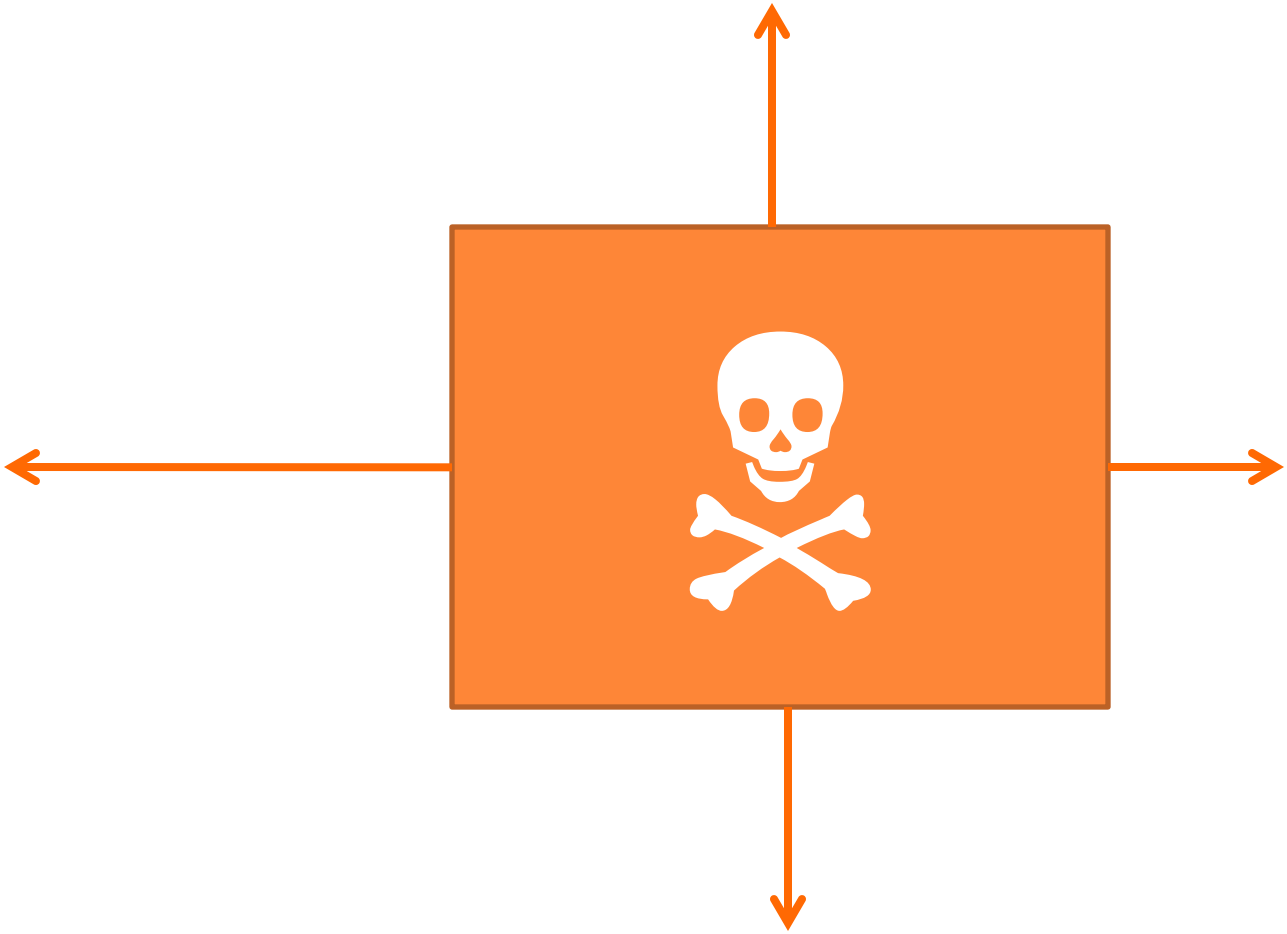
- As the earth rotates about its, it takes 3 hours for the US to pass beneath above that is stationary relative to the sun. What is wrong with the following scenario? During a zombie apocalypse, to escape from Washington D.C. to San Francisco, simply ascend in a helicopter and wait 3 hours until San Francisco passes below.

Question 4

- A skeleton is hanging from a tree by his 2 hands. If the skeleton weighs 40 N. How much tension is supplied in rope?

Question 5

- Calculate the net force of the following…



Question 6

- If a zombie weighs 500 N on Earth, what would she weigh on Jupiter, where the acceleration due to gravity is 26 m/s^2?

Question 7

- A glass ketchup bottle has a small amount of ketchup at the bottom. According to Newton's 1st Law of Motion, what would be the best way to dislodge the ketchup?

Question 8

- An elevator suddenly stops it's decent and the passengers' blood rushes to their feet. Use Newton's 1st Law to describe why this happens.

Question 9

- A clothesline is under tension when a bat hangs from it. Why is the tension greater when the bat hangs from the clothesline strung horizontally than when it hangs from it vertically?

Question 10

- A person, running from zombies, hops on a truck's tailgate to escape. If the drivers accelerates too quickly, use Newton's 1st Law of Motion to explain the outcome?

Question 11

- A bag of Halloween candy weighs 50 N. Calculate it's mass.

Question 12

- What is the relationship between mass and inertia?

Question 13

- A werewolf is chasing a vampire around a corner and slides across the dirt 3 meters. During the slide, draw a picture of all the forces on the werewolf. Is the werewolf in equilibrium? Explain.