



QUARRY PRE-VISIT LESSON ACTIVITY SHEET 2

NAME: _____

FORCES AT ZIP WORLD

A force is balanced when two equal forces push or pull in the opposite direction, like a draw in a Tug of War. An unbalanced force is when one force is larger than the other. The object will then change its speed or the direction it is moving in.

1. Draw arrows on these pictures to show the direction and size of the forces acting on these quarry trucks that are...

...accelerating



...at constant speed



...decelerating



Which of the pictures above shows balanced forces? _____

2. What would happen next in these scenarios?



Friction

The forces are balanced/unbalanced so...

Weight



The rider tucks their arms into the sides of their body.



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RESULTANT FORCES

Unbalanced forces result in a change in motion – the overall force on the object is called the resultant force.
If forces are balanced, the resultant force is zero.

If the forces on an object are unbalanced...

- a stationary object starts to move in the direction of the resultant force
- a moving object changes speed and/or direction in the direction of the resultant force

It can be calculated by working out the difference between the opposing forces.

Example

The truck accelerates in this direction

*The resultant force can be calculated:
 $100\text{N} - 60\text{N} = 40\text{N}$ (to the right)*

