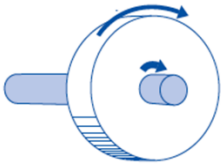
Name:

Wheel and Axles

Simple Machines



Wheel and axles are used to help move heavy objects more easily

Wheel and axle: a simple machine that is used change **circular** motion into **forward** motion

- A wheel reduces the **friction** between an object and a surface, making it much easier to move

- They work by spinning the **axle** attached to a **wheel**, transferring the force forward over a larger distance
- The **axle** is firmly attached to the **wheel**
- As **force** is applied to spin the axle, it is transferred to the **wheel**
- The **wheel** reduces the **friction** that would be put on an object by dragging it along the ground

Draw a diagram of a **wheel and axle**: label the **wheel** and **axle**

Name 3 wheel and axles you might see in everyday life:

1._____
2._____
3._____

- Wheel and axels are used when objects have to be moved over long distances
- Using a **wheel and axle** greatly reduces the **friction** put on an object as it moves along the ground
- Instead of a whole object being slowed by friction, only the wheels underneath have any contact with the ground
- This allows the object to be moved with ease!

Types of Wheel and Axles

- **Fixed Axle:** when the axle is firmly **attached** to the wheel
  - The rotation of the **axle** is transferred into forward motion of the **wheel**
- When an **wheel** is not fixed in place, it is able to turn independent of the **axle**
  - This is found in **pulleys**!

Draw diagrams of **fixed** and **not fixed** wheel and axles: label the **axle, wheel,** and **movement** of each

Build your own **wheel and axles**!

Draw diagrams of all the different types of wheel and axles you and your group can create with the wheel and axle kits:

- Label all the parts with the correct vocabulary!
- See how much weight each can move!
- What functions could they serve?