Pulleys & Gears
Agenda

• Introduction
• What’s a Pulley?
• Playing with Pulleys
• What’s a Gear?
• Playing with Gears
• Acting Game
• Conclusion
Introduction

• What do scientists do?
• Where are they?
• What types of scientists are we?
• How does this type of science affect you?
What’s a Pulley?

- Have you seen one before?
- How do they work?
- Where do you find them?
- Do you think they are helpful?
Playing with Pulleys

• Single big pulley system
  – Start with only one pulley.

• Double pulley system
  – What’s the difference between having two pulleys and having one?

• What if we added even more?
What’s a Gear?

- Have you seen one before?
- What is a gear?
- How do gears work?
- Where would you find one?
- What is the difference between pushing and pulling?
Playing with Gears

• Do you think a gear can be useful by itself?
• Do the size of the gear’s teeth matter?
• Should the teeth match up?
• Does the direction a gear turns matter?
Rotation Activity

• You will be given a number (1, 2 or 3).
• You will be asked to go to:
  – 1. The big pulley station.
  – 2. The small pulley station.
  – 3. The gear station.
Acting Game

• Come up with actions for each of these words:
  – Pulley
  – Gear
  – Energy
  – Work
  – Crane
  – Clock
  – Strength
  – Motion

• Are there any more you can think of?
Conclusion - Pulleys

- What is a pulley?
- Where would you find one?
- How are the two systems different?
- Where is the force being applied?
- Is it a push or pull?
- Does it take the same force to raise both of them?
Conclusion - Gears

- How do gears work?
- Where would you find them?
- What directions do we see the gears turning?
- How does the number of gears affect the direction of rotation?
- How does the size of the gears affect the number of rotations?
- Where is energy spent?
- Where is work done?
- How can this be used in real life?
Debate!

- The bike... is the chain system an example of a pulley or of a gear?
Relevant Fields

- Machinery
- Construction
- Transportation
- Shipwork
- Well-drilling
- Manufacturing (Conveyor Belts)
- Recreation
Thanks for having us!