Speed and Energy

Activity 1 – Plunge Diving

Some seabirds dive from a height and plunge into the water to catch fish. The faster they enter the water, the less chance the fish have of escaping. The **gannet** can enter the water at speeds over 60 miles per hour.

**Question:**

Will birds diving from higher altitudes hit the water faster?

**Procedure:**

Look at the picture below:

Three gannets begin their dives from different angles. All three will dive for a distance of 50 meters. **Which will be moving the fastest when it hits the water?**
Find some partners.
Design an experiment to help you answer the question.

The materials available to your group include:
- Fishing line (a type of plastic string)
- Scissors
- Masking tape
- Tape measure
- Wooden beads

Use the space below to describe and sketch your plan. Show it to your teacher for approval.
Once you have approval from your teacher, do your experiment. Record your results below:

Will birds diving from higher altitudes hit the water faster? Explain your answer using evidence from your experiment.
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Activity 2 – Fishing is Hard Work

A diving Gannet tries to hit a fish hard to stun or injure it. The dive may carry the Gannet and its prey over 10 meters deep into the ocean. The Gannet will swallow the stunned fish before returning to the surface.

Pushing through water and hitting fish is hard work. The ability to do work is called energy.

**Problem:**
Does entering the water faster give the Gannet more energy to do its work?

**Procedure:**
Find some partners.
Design an experiment to help you answer the question.

The materials available to your group include:

- Fishing line
- Scissors
- Masking tape
- Clear plastic cup
- Water
- Paper towels
- Metal bolt
- Tape measure
- Large beads
- Small beads
- Ruler

Take a look at these materials and talk with your partners. Use the space on the next page to describe and sketch your experiment. Show it to your teacher for approval.

If your experiment includes using a cup of water, be sure you have a plan for preventing a spill, and a plan for cleaning up splashed water.
Our experiment:

Once you have approval from your teacher, do your experiment. Record your results below:
Does entering the water faster give the Gannet more energy to do its work? Explain your answer using evidence from your experiment.

What happens to the energy of the Gannet after it stops falling? Does the energy disappear? Does the energy go into some other object? Explain your thoughts.