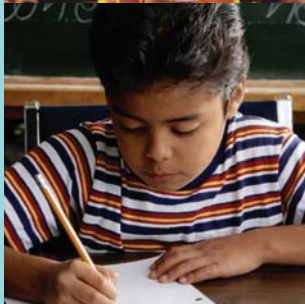




TEACHER CARDS

SCIENCE

6



- Living Things
- Materials
- Energy and Forces

Module

6

TO BE USED IN CONJUNCTION WITH
WORKSHEETS 6A TO 6E



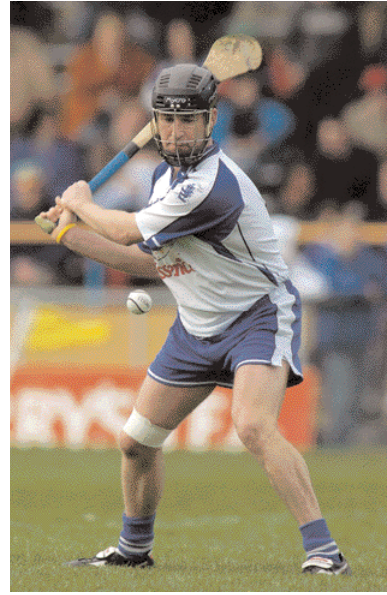
www.gaa.ie

 **MODEL**
EDUCATION

Strand: Living Things

Strand unit: Human Life

- Investigate the most important parts of the human body that are used in games of hurling, camogie, rounders, handball and gaelic football **WORKSHEETS 6A, 6B**
- Identify the parts of the body that need protection while playing these games.
- Consider how skeletons and muscles support and protect the body in playing the games.
- Discuss the importance of joints in enabling people to participate in the above games, the wrist, the knees, the elbows etc.
- Measure pulse rate (record results after different types of exercises) **WORKSHEETS 6B**



<http://www.lawrencehallofscience.org/familyhealth/activities/vitalsigns/vitalsigns.html>

This website shows the children how to locate their pulse and measure it. It allows for good integration with maths and time, e.g. take the pulse for 15 seconds and multiply it by 4 to calculate the pulse after a minute.

Experiment

Measure the lung capacity.

What you need: Large basin of water, large 5 litre plastic bottle with cap, plastic tubing, old towels for mopping.

Preparation:

Mark volume on the large plastic bottle, e.g. the 1 litre mark, 2 litre, 3 litre, 4 litre, 1.5 litres, 2.5 litres, 3.5 litres, 4.5 litres etc. by pouring in a known volume of water.

1. Fill the 5 litre bottle completely with water and put on the lid.
2. Turn it upside down in the basin of water and remove the lid.
3. Put one end of the plastic tubing into the bottle trying not to let any air out.
4. Take a big breath and then blow into the tube until you cannot breathe out anymore.
5. What happens?
6. Record your result.

Result:

The amount of empty space at the top of the bottle shows the amount of air that was in your lungs and which pushed the water out.

Human Life Processes

- Develop a simple understanding of food and nutrition.
- the importance of a healthy balanced diet.
- the importance of food for energy and growth.
- design and make a balanced and nutritious menu for someone in training with a county G.A.A. team

WORKSHEET 6C



Strand unit: Plants and animals

- Conduct some investigations on an ash tree if one is located in the local environment. This will need preparation and input by the teacher. The information for the following activities is available on the following website.
- http://www.wildkids.org.uk/tree_measure.htm
- This child-friendly website can provide the teacher, pupil or indeed both with the information required concerning, girth, measuring the age and height of the tree.
- The following website assists in the conversion of units from feet and inches on a measuring tape to metres and centimetres to allow it to be added to the distance from the tree in the same metric units.
- http://www.engineeringtoolbox.com/length-units-converter-d_1033.html
- Calculate the height of the ash tree **WORKSHEET 6D**
- Calculate the age of the tree **WORKSHEET 6D**
- Having carried out these investigations (possibly in groups) the children may then be encouraged to conduct a tree audit the template of which is located on **WORKSHEET 6D** also.



Strand: Materials

Strand unit: Properties and Characteristics of Materials

- Examine the materials of current G.A.A. jerseys and discuss their properties.
- Explore the origin of these materials.
- identify natural and manufactured materials and understand how some of these are processed and made.
- how the football is made.
- how is the hurley made: **WORKSHEET 6D**. This worksheet involves the children thinking of how the hurley was made and illustrating the 'Story of the Hurley' in picture format. The children could then be encouraged to share their ideas and learn from each other any steps that they may have left out. As a follow up to this the teacher may decide to provide the children with some of the detailed information below and the children can then make an informed list of the steps taken in hurling manufacture. The emphasis is on the strand unit: materials and change, and how the material of the wood from the ash tree underwent change to be manufactured into the hurley. A similar activity could be conducted for the Gaelic football or indeed the manufacture of a jersey.

How a hurl is made

1. Suitable ash trees are selected and marked for cutting. A suitable tree should be young. The tree should be clear of defects for the first 1 to 1 1/2 metres. They should have well developed roots, ideally 3 or 4 roots per tree with each root measuring a finger span in width. Ash trees growing in a chalk or lime base soil are preferred. A special cut is required so either the hurley maker or a skilled chainsaw man fells the trees. Harvesters cannot be used to fell hurley ash.



2. The 'hurley butts' as they are now called are brought to the sawmills. The tree is cut into planks approx. 1 1/8 inches thick.
3. The planks are stacked with spaces and left to 'air'. This can take any time from 6 months to 18 months.
4. When the planks are at the required moisture content they are brought to the workshop.
5. The planks are marked out using a template.
6. Once marked they are cut out using a handsaw or automated saw. They are now ready to be put into the hurling copying lathes.
7. The planks are now in the shape of a hurley but they are still 1 1/8 inches thick.
8. These lathes can make from between two to eight hurleys at a time.
9. The hurleys now go back to the handsaws and cut to their exact length.
10. The hurleys now go to the hurley makers finishing bench. They are finished using planers and spokeshaves. This is where the balance is put into the hurley.
11. The hurley is now ready for sanding. The hurley goes through a two tier-sanding program. Firstly, they are sanded with a coarse grit-sanding belt and later with a finer belt.
12. They are then ready for preservation treatment such as linseed oil.
13. Finally, the hurleys are stamped and graded into intercounty, specials and regulars.
14. They are now ready to be sold.

Examine the different parts of a hurley and their functions **WORKSHEET 6D**



Strand: Energy and Forces

Strand unit: Forces

- Investigate different ways of hitting a sliotar (spin, lob, fast, slow) **WORKSHEET 6E**. Here, the children are required to tick the sport in which the named forces apply, e.g. a fist pass applies to football but not to hurling. The children should be encouraged to discuss the type of force involved in each action, was it a push or a pull or both.
- Explore the effect of friction on the movement of the sliotar and the football, in examining the surfaces that the game is played on **WORKSHEET 6E**. Here the children carry out an investigation to predict how far the sliotar will roll on each surface. They conduct the test and record how far the ball actually travelled on the different surfaces. The children can then decipher which surface applies the most friction to the ball. Friction is the force that will cause the ball to slow down. A definition of friction may be '*the resistance to motion between two surfaces in contact*'.
- Discuss the results of their investigation on friction **WORKSHEET 6E**
- Come to appreciate that gravity is a force. If the children throw a ball up in the air they are applying a force to it, in this case a push. But what is the force that causes the ball to come back down? Teachers may get some nice ideas to further experiment with gravity from the following website:
- <http://www.galaxy.net/~k12/space/notes.shtml>
- Examine the best point of contact for sideline cut, penalty etc. to create the greatest force **WORKSHEET 6E**. This involves engaging the children in a practical investigation as to what part of the hurley will provide the best force for the child when taking a penalty, where a strong direct force is needed, or a sideline cut where the ball needs to be lifted or pushed up into the air to move.

