**Week 9 – Topic Support Pack**

In this pack, you will find all of the instructions, resources and questions that you will need to complete your Topic lessons for this week. This week we will be carrying on looking at different properties of materials.

**Lesson1 – Planning an experiment**

Plan an experiment to test and compare each materials hardness, solubility, transparency and response to magnets.

**Key words**

**Hardness:** Resistant to scratching or pressure.

**Solubility:** Testing whether a material or substance dissolves. If it dissolves in a liquid then the material is soluble.

**Transparency:** Transparency is how well you can see through an object. If you can see through the object, then the material is transparent.



**Magnetic:** If a material is magnetic then it will attract to a magnet.

**Non-magnetic:** If a material is non-magnetic then there will not be a force between the magnet and the object.

Fill out the grid below with the method of how you will undertake each test. Use the questions if you need a few ideas. Make sure you are specific and state how each one will be a fair test! E.g. keeping the conditions (where you do the test) the same. You may wish to use a scale from 1-5 of how well the objects material reacts for each test.

|  |  |
| --- | --- |
| What I will do to test the hardness of the material…(For example you might try and squeeze or tap the object)**Method:**It will be a fair test because I will… | What I will do to test the solubility of the material…(Think about how long you will leave it in the liquid for)**Method:**It will be a fair test because I will… |
| What I will do to test the transparency of the material…(Think about the place where you test this. Is it inside or outside?)**Method:**It will be a fair test because I will… | What I will do to test how well the material responds to magnets…**Method:**It will be a fair test because I will… |

**Lesson 2 – Carrying out the experiment**

Gather some household items which are made from different materials. Make sure you check with your parents that the objects you have gathered are allowed to be used in your experiment! You may use a scale from one to 5. An object will either dissolve or not, so this one will be a yes or a no answer.

*These household objects might be:*

* *A metal spoon*
* *A piece of paper*
* *A metal key*
* *A pen*
* *A plastic container*
* *A rubber band*

Carry out your experiment and record your results using the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Object and Material** | **Hardness** | **Solubility Y/N** | **Transparency** | **Response to a magnet** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Lesson 3 – Interpreting data from your results table**

This lesson you are going to be looking at your results table and drawing conclusions from your experiment. Answer the statements and questions below.

**Statements:**

The hardest object from my experiment was……………………………………………………………………………

I found that………………………………………………………………………………………………… did not dissolve.

The most transparent object I found was …………………………………………………………………………………

I found that ……………………………………………………………was magnetic.

I found that ………………………………………………………………………………………… was non-magnetic.

**Questions:**

What did you enjoy most about your experiment?

Was your experiment fair? Explain why…

What went well in your experiment?

What would you change if you were going to do this experiment again? (To improve it)

**Extension – Solubility**

Research and find objects/materials that are soluble and how solubility helps the objects purpose.