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| **F:\Learning bugs\Foundation Subjects\Dolly the Fly - Science.jpgLyng Primary School Knowledge Organiser**  |
| **Topic:**  | **Properties and changes**How do properties of materials change? | Year 5 | Autumn 2 |



**What should I already know?**

To define the term mixture and name common examples

To define the term ‘sieving’ and explain how sieving separates mixtures.

To define the term filtering and explain how filtering separates mixtures.

To define the terms ‘solutions’ and ‘dissolve’ and name some common examples of solutions.

To recall some factors that affect the time to dissolve.

To describe the effect of temperature on the time taken to dissolve.

To define the term ‘evaporating’ and explain how evaporating separates solutions.

**Notable scientists**



Robert Boyle

1627–1691

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| **What Step On and Goldilocks words will I use?** |
| **Spelling** | **Definition** |
| Electrical Conductivity | A measure of how quickly and easily an electrical charge passes through a material. |
| Hardness | A measure of how easily a material can be scratched or dented.  |
| Transparency | A measure of how much light a material lets pass through. |
| Condensing | When a material changes from a gas to a liquid |
| Irreversible change | When a material is changed but cannot easily be reverted to its original state.  |
| Light intensity | The measure of light that passes through an object.  |
| Reversible change | When a material is changed but can be easily reverted to its original state.  |
| Thermal conductivity | Measure of how quickly and easily heat passes through a material |
| Circumference | The distance around the edge of a circular object.  |
| Opaque | A material that does not let any light through so objects on the other side cannot be seen.  |
| Translucent  | A material that lets some light through. The light is scattered and so objects on the other side appear fuzzy.  |
| Rusting  | An irreversible change when iron makes rust when exposed to water and air (oxygen) |

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| **Investigate!** |
| * Test objects and group them depending on their hardness.
* Work out the transparency of an object by measuring the amount of light that passes through.
* Test objects to see how easily heat passes through.
* Heat and then cool objects to see what happens to their state.
* Draw conclusions from a rusting investigation.
* Investigate what happens when mixing bicarbonate of soda and vinegar.
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**What will I know by the end of the unit?**

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| Which material is the hardest?  | Define the term hardness. Test compare and group hard and soft materials.Select materials for a specific purpose based on their hardness.  |
| How well can I see through my object? | Define the term transparency.Compare and group transparent, translucent and opaque materials.Select materials for their purpose based on transparency.  |
| How quickly will my object heat up?  | Define the term electrical and thermal conductivity.Test and compare the conductivity of materialsGroup materials for suitability of their purpose.  |
| How can I get my materials back? | Define the term ‘reversible change’Describe how to reverse mixing and dissolving using separation. Describe how to reverse changes of state by heating and cooling.  |
| Will the rust go away?  | Define the term of irreversible change. Identify and describe burning and rusting as irreversible changes. Describe the differences in how some objects burn.  |
| Will the change always be the same? | Mixing different amounts of substances and describing the effects. Measure accurately. Describe reactions of materials.  |

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| 1. How can we test a material for hardness?
 | **S** | **E** |
| 1. Weigh it
 |  |  |
| 1. Throw it
 |  |  |
| 1. Scratch it to see if a mark is left.
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| 4. What type of change is rusting?  | **S** | **E** |
| 1. Reversible
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| 1. Irreversible
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| What happens when you change the amount of vinegar and you mix it with bicarbonate of soda? |
| **S** | **E** |
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| 2. Which term means that no light is able to pass through?  | **S** | **E** |
| 1. Transparent
 |  |  |
| 1. Translucent
 |  |  |
| 1. Opaque
 |  |  |
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| 3. Which object is a good thermal conductor? | **S** | **E** |
| 1. Cotton wool
 |  |  |
| 1. Metal spoon
 |  |  |
| 1. Pencil lead
 |  |  |
| 1. Plastic spoon
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| 4. How can the melting of an ice lolly be reversed? | **S** | **E** |
| 1. Freezing
 |  |  |
| 1. Sieving
 |  |  |
| 1. Heating
 |  |  |
| 1. Filtering
 |  |  |