

Final Outcome: We are working towards creating and presenting a device that can recover a substance from a solution using our knowledge of materials and their changes.

**Component 7:**

**What we will know after this sequence:**

- We will know the processes needed to recover and separate mixtures from a solution and will be able to describe how their own design and product meets these processes.
- We will also be able to evaluate the effectiveness of their own.



**Vocabulary:**

Create, build, recover, separate, materials, evaluation, describe,

**How will this feed into my next learning:**

We will use their knowledge of properties and changes of materials in different contexts, including D & T projects in Term 5/6.

**SEND:** pictorial representations of key vocabulary and facts for the lesson.

**Component 6:**

**What we will know after this sequence:**

- We will be able to describe key mixtures that might be found in the Nile and their properties.
- We will then be able to design and describe their own contraption/device to recover a substance from the Nile that has been lost.

**Vocabulary:**

Recover, design, criteria, properties, evaporating, sieving, filtering, separation

**How will this feed into my next learning:**

We will use their knowledge of materials and changes to create a contraption that can separate materials and recover materials.

**SEND:** pictorial representations of key vocabulary and facts for the lesson.

**Component 4:**

**What we will know after this sequence:**

- We will know how to separate mixtures using filtering, metals, wood and plastic.
- We will also be able to identify and name some changes that are reversible/irreversible.
- We will be able to design and justify a device they could use to purify 'toxic' water from the River Nile.

**Vocabulary:**

Toxic, purify, filter, sieve, reversible, irreversible, change, states of matter,

**How will this feed into my next learning:**

Pupils will use their knowledge of separation techniques and irreversible and reversible changes to explore what happens when new formations are made through these changes.

**SEND:** pictorial representations of key vocabulary and facts for the lesson.

**Component 5:**

**What we will know after this sequence:**

- That some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.



**Vocabulary:**

Formation, change reversible/irreversible, burning, acids,

**How will this feed into my next learning:**

Pupils will use their knowledge of new materials being created in some changes to explore how they might try and recover a material that appears to 'disappear'.

**SEND:** pictorial representations of key vocabulary and facts for the lesson.

**Component 3:**

**What we will know after this sequence:**

- We will know how to investigate a question, exploring the strength of various papers and will be able to record and share their investigation results in the form of a 'paper presentation'.
- We will also know the impact some materials have on the environment and why we need to promote environmentally friendly products.

**Vocabulary:**

Opinion, fact, variables, accuracy, precision, bar chart

**How will this feed into my next learning:**

Pupils will use their knowledge of properties to investigate the processes used to separate solutions.

**SEND:** pictorial representations of key vocabulary and facts for the lesson. To have selection of products to physically handle and discuss to reinforce learning.

**Component 2:**

**What we will know after this sequence:**

- We will know the definition of a thermal conductor and a thermal insulator and will be able to record findings in a table before presenting in a line graph.
- We will also be able to recommend materials for a given criteria using their scientific knowledge.

**Vocabulary:**

Variables, accuracy, precision, line graphs, causal relationship, degree of trust, thermal insulator/conductor.

**How will this feed into my next learning:**

We will use this knowledge to explore the properties of paper, to ensure that a product design is appropriate for its purpose.

**SEND:** pictorial representations of key vocabulary and facts for the lesson. To have recap on different materials properties prior to the lesson. BBC bitesize videos to be used prior to lesson if needed. To have axis pre-drawn for graph if needed too.

**Component 1:**

**We should know:**

Pupils should already know different states of matter. They would have explored magnets in Year 3 looking at the different poles as well as magnetic forces and materials that attract.

**What we will know after this sequence:**

- We will be able to identify and compare everyday materials based on their properties, including hardness, transparency and conductivity (electrical and thermal).
- We will be able to give reasons based on evidence from comparative and fair tests, for particular uses of everyday materials, including metals, wood and plastic.
- We will know the most suitable material for food preparation schemes.

**Vocabulary:**

Opinion/fact, variables, accuracy, precision, scatter graphs, material names, property names,

**How will this feed into my next learning:**

We will use their knowledge of everyday materials and their properties to create a scientific enquiry that recognises and controls variables where necessary.

**SEND:** To have lots of visuals and targeted facts to learn from the lesson that are supported by pictorial representations or actions to help memories. Pre-teach vocabulary and concepts and allow the pupil to suggest ways of recording the learning from the lesson, not necessarily in written form.

