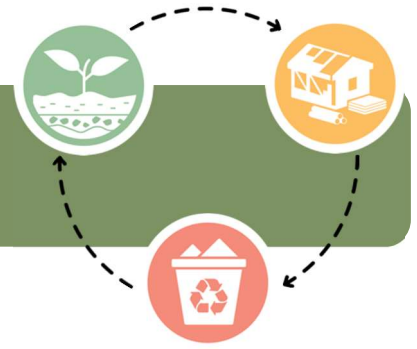


**BUILDING A NEW WORLD: Material Life Cycle****TEACHER'S NOTES****KS2 | Sustainability Activity****Introduction**

This session is delivered alongside the 'Material Life Cycle' presentation and students' Activity Sheet. This resource can be used to teach the topic of Material Life Cycles, including interactive ways of engaging with different phases of a material's life cycle, and how this topic relates to their daily life and wider impact on the environment and climate.

**Aim**

To introduce students to Material Life Cycles: inviting reflection on the built environment, products, and materials used around them in daily life and how these relate to wider topics of climate change and sustainability.

**Activity**

This resource describes three key phases of a Material Life Cycle:

'Where does it come from?'

'How can it be used?'

'What can it become next?'

With this, three different activities have been developed inviting a range of outcomes, experiences and learning styles to suit your classroom, resources, and students. You can choose to engage with all three activities in a single session or spread them over three separate sessions.

**Outputs & Outcomes****Outputs**

Activity Sheets will guide outputs for each activity. This includes optional writing, drawing, scavenger-hunt and model-making.

**Outcomes**

- Understanding of where materials come from and how they become objects and products used in daily life.
- Awareness of the impact of materials and waste on the natural environment.
- Greater confidence to recognise different materials and why / if they have been used.
- Raised confidence from projecting their ideas and hopes for the future.

**Curriculum Links****English:**

- Relevant strategies to build vocabulary.

**Art:**

- Improve their mastery of art and design techniques, including drawing, painting, and sculpture with a range of materials.

**Design and Technology:**

- Explore and evaluate a range of existing products.
- Understand how key events and individuals in design and technology have helped shape the world.
- Select from and use a wide range of materials, including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities.

**Science:**

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.

Where does it come from?

## MATERIAL MATCH-MAKER



### ***(Estimated time to complete 5-10mins)***

Students can independently complete the Activity Sheet or the optional activities below:

#### **Optional Activity 1:**

##### ***(Estimated time to complete 10-15mins)***

1. Gather a selection of objects made from a variety of materials (such as pencils / plastic bottles\* / fizzy drink cans\* / crisp packets\* / glasses / jumpers). You can also use images of larger things that you can't physically move, such as walls / windows / blinds etc.
2. Label 3 pieces of paper with: 'the ground', 'living things' and 'recycled or waste materials'.
3. In groups, students then place the physical objects on the piece of paper that refers to its source.

#### **Optional 2:**

##### ***(Estimated time to complete 15-20mins)***

1. Use three different coloured post-it notes or stickers to indicate each of the three sources of materials: 'the ground', 'living things' or 'recycled/waste materials'.
2. Students go around the classroom/school sticking post-it notes or stickers on the materials they find, matching where they think they come from.
3. The outcome will be a classroom coloured to show where its materials come from, which can then lead a discussion. For example, which is the most common source or why do they think there are so few objects from a particular source?

\*If using recycled food or drink packaging ensure these are clean before using.

How can it be used?

### MATERIAL BINGO



***(Estimated time to complete 10-15mins)***

Students can independently, or in pairs, complete the Activity Sheet while seated at desks, visually looking around them for material examples.

#### **Optional Activity:**

***(Estimated time to complete 15-30mins)***

Students can physically explore the classroom / school / home looking for as many materials as possible and what they are being used for. (Encourage students to consider one material being used for multiple different purposes).

What can it become next?

### CREATIVE HOUSE BUILDING



***(Estimated time to complete 15-30mins)***

Ask the students to think about or research what objects and materials are thrown away at home, in school or are left at the tip.

In groups the students will then discuss and write down what properties they think a house should have, such as being dry, warm or cool, private or light.

Their next step is then to think about what materials would be needed to deliver those properties, such as insulation, see-through materials etc.

Now ask them to think back to the objects and materials they thought about in step one and ask them to design and draw a house using things they can recycle.

This activity is more about creative thinking and using our imaginations, so if houses aren't fully feasible and created out of empty glue sticks or old fridge doors that is absolutely fine.

#### **Optional Activity:**

***(Estimated time to complete 30+mins)***

Students can use recycled materials to physically model their Creative House idea. (e.g. paper cups, cardboard kitchen roll tubes, egg cartons\*)

\*If using recycled food or drink packaging ensure these are clean before using.



## Key Terms

- **Architects** – Architects are people who design buildings. They work with lots of people like engineers, urban planners, landscape designers, local communities and many more to make the built environment.
- **Built Environment** – The built environment is all the human-made spaces, places, and buildings we inhabit. It includes buildings like schools, houses, libraries, shopping centres etc, as well as roads, railways lines, bus stations and all transportation, it also includes energy networks and water supply, and all public spaces.
- **Engineers** – Engineers are people who design and build complex products, machines, systems or structures like buildings or bridges.
- **Material Properties** – All materials have properties. It is something that we can measure, see or feel about the material. Examples of properties are; hardness, softness, durability or weight. Different materials are good for different jobs based on their properties.
- **Material Life Cycle** - Absolutely everything that is created goes through a series of life cycle stages, from material extraction ('where does it come from?'), use (how can it be used?) through to end of life or re-use ('what can it become next?'). Other stages to be aware of include manufacture, packaging, and transport. When we think of the life of material as a CYCLE instead of a LINE, we can begin to think more sustainably; reducing waste and reducing the amount of natural resources used.
- **Raw Materials** – Everything around us starts as a 'raw material'. These raw materials can come from different places; from the ground (such as sand, stone, oil, metal), or from living things (such as plants, trees, animals) or from waste/recycled sources (materials like plastic and metal are easy and common to recycle).
- **Recycling** – Recycling is the process of turning waste into reusable material.
- **Sustainability** - All life on Earth depends on the environment. The natural resources that come from the environment include food, water, plants, raw materials and minerals. Sustainability is the idea that humans interact with the environment in a way that ensures there will be enough resources left for future generations and maintain ecological balance.

## Other Resources:

### What is Sustainability? – Bitesize

<https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/zpr3bqt>

### How to Identify Materials – Bitesize

<https://www.bbc.co.uk/bitesize/topics/zryycdm/articles/zk2d96f>

### What is a Life Cycle Assessment? - National Oak Academy

<https://classroom.thenational.academy/lessons/what-is-a-life-cycle-assessment-6xqk8r>