**Year 2 Science Curriculum – Autumn Term 2**

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| **Theme: Choosing Materials** | | | | | | | | | |
| **Curriculum objectives** | | | **Vocabulary** | | | | | | **Links across the curriculum** |
| 1. To identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses | | | **Keyword** | **Definition** | **Invent** | To create or design something that has not existed before | | | **Maths**: data collection – bar charts.  **Design & Technology**: using different materials to make a product.  **English**: From Tree to Book – Sarah Levison – A journey through materials that make a book. |
| **Compare** | To notice how things are the same or different | **Record** | To draw or write what you observed or measured | | |
| **Design** | To make or draw plans for something new | **Suitable** | Right for purpose | | |
| **Discover** | To find unexpectedly or as a result of an enquiry | **Use** | The purpose for which a material is chosen | | |
| **Fit for purpose** | Well suited for its use | **Opaque** | An adjective used to describe a material you can’t see through | | |
| **Bouncy/ bounciness** | An adjective used to describe something that springs back or up after hitting something | **Property** | What a material is like | | |
| **Durable** | Able to withstand wear, pressure or damage | **Rigid** | Unable to bend | | |
| **Rank** | To put things in an order | **Transparent** | An adjective used to describe a material that you can see through | | |
| **Absorb/ absorbent** | To take fluid | **Waterproof** | Does not let water pass through it | | |
| **flexible** | Able to bend easily without breaking | **Bar chart** | A way to show measurement or amount by using bars of different heights | | |
| **Prior knowledge:***What specifically have pupils learned that is relevant to this unit that they are building upon?* | | | | | | | **Future knowledge:** *What specifically will pupils learn in the future that is relevant to this unit?* | | |
| Choosing materials is a Chemistry topic, building on children’s learning and experiences in Year 1.  Children have previously learnt:   * To explore the differences, they notice between materials and how they can be changed (EYFS framework; ELG The Natural World) * To identify, describe and compare a variety of everyday materials, such as wood, plastic, glass, metal, water and rock, and their physical properties (Year 1 Chemistry – Everyday materials). | | | | | | | This prepares children for later learning:   * How squashing, bending, twisting, and stretching can change the shape of solid objects (Year 2 Chemistry – Uses of everyday materials) * About different kinds of rocks and their properties (Year 3 Chemistry – Rocks) * About solids, liquids, gases and changes of state (Year 4 Chemistry — States of matter) | | |
| **Lesson Sequence** | | **Key Knowledge** | | | | | **Key Skills** | | |
| 1. *Is that a good choice of material?* | | Certain materials are suitable to be used to make different objects. Some materials may not be suitable to make an object. Materials have properties, such as being waterproof, transparent, or flexible. Properties of materials can make them useful for a purpose. | | | | | **Working scientifically**  **Skills children will learn, use and develop**   * Asking simple questions and recognising that they can be answered in different ways. * Performing simple tests. * Identifying and classifying. * Using their observations and ideas to suggest answers to questions. * Gathering and recording data to help in answering questions.   **Knowledge about science children will learn**  Children will learn about the methods scientists use to build scientific knowledge about materials and how they can be used in different ways.  They will learn how scientists and inventors have to be persistent and keep going when the things they are trying to do don’t work the first time.  They will develop an understanding of the following type of enquiry: comparative testing. | | |
| 1. *Which ball bounces highest?* | | An object can be made from various materials. Objects can be tested and sorted according to their properties of the materials they are made from. Some materials are more suitable for particular uses. | | | | |
| 1. *Which materials are good for a toddler’s play dungarees?* | | Different types of fabric have different characteristics and uses. Fabrics can be tested and sorted according to their properties. Some fabrics are more durable than others. | | | | |
| 1. *Who develops new materials?* | | Inventors discover new uses for existing materials and create new materials. Inventors design objects using their knowledge of the properties of materials. | | | | |
| 1. *Assessment* | | Snapshot 1: Which materials are suitable?  Curriculum statement is achieved if the child: Can choose a suitable material for a purpose and say which properties make it suitable: for example, a stretchy, lightweight fabric that is not waterproof for a leotard. Can identify properties that make a material unsuitable for a purpose: for example, glass is waterproof but too heavy and breaks too easily for an umbrella. Can name different materials that an object can be made from and say which are suitable for how it will be used: for example, thin plastic for disposable forks or spoons; metal for forks and spoons to be washed and used over and over again. Can compare materials and decide, with reasons, which is most suitable: for example, plastic for bin liners because it is waterproof and can be quite strong; slate for a roof because it is hard, strong and waterproof. Can recognise advantages and disadvantages of some properties: for example, rubber is good for wellies because it is waterproof, but this keeps in sweat from your feet. | | | | |
| **Themes and links** | | | | | | | | | |
| **Themes (types of enquiry)** | **Where these are covered:** | | | | | | | **Links across the Science curriculum** | |
| **Observing closely (using simple equipment)** | Lessons 1, 2 and 3  Can use simple scientific language to describe how suitable a material is for a given use; how bouncy a ball is; how durable a type of fabric is; how waterproof a type of fabric is. | | | | | | | |  |  | | --- | --- | | EYFS | To explore the differences, they notice between materials and how they can be changed (EYFS framework; ELG The Natural World). | | 1 | Distinguish between an object and the material from which it is made  describe the physical properties of a variety of everyday materials.  Compare and group together a variety of everyday materials on the basis of their simple physical properties. | | 2 |  | | 3 | Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  Recognise that soils are made from rocks and organic matter | | 4 | Compare and group materials together, according to whether they are solids, liquids, or gases. | | 5 | Compare and group together everyday materials on the basis of their properties, including their hardness, [solubility,] transparency, conductivity (electrical and thermal), and response to magnets.  Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. | | 6 |  | | |
| **Comparative and fair testing** | Lessons 2 and 3  Can carry out comparative tests successfully, to investigate which ball is the bounciest, and to identify which material is best to make a pair of toddler’s dungarees. | | | | | | |
| **Gathering and recording data to help in answering questions** | Lessons 1, 2 and 3  can find answers to their questions about suitability of a material for a given use; durability of fabric; bounciness of a ball.  Can group and identify materials according to their properties: durability, bounciness, water resistance.  Can record observations and measurements in simple, prepared tables to help in answering questions about how bouncy different balls are and how durable different materials are. | | | | | | |
| **Identifying and classifying** | Lessons 1, 2 and 3  Can sort and group materials using their properties.  Can compare simple features and properties and use differences to identify and name materials.  Can use simple scientific language to describe properties of the materials. | | | | | | |