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| **Year 3 Autumn: Light (physics) 8** |
| **What is light? What is darkness?**Key learning: a light source is something that emits light. Darkness is the absence of light.Identify sources of light - sortPZAZ: 3.11 Darkness, sunlight and reflection – activity ‘Darkness’Resources: light meters (or iPad), blackout cloth | **Why do we need light?**Key learning: We need light to be able to see objectsPractical learning: ‘What’s in the bag?’ – different objects placed in feely bags. Chn to record what they think the objects are without looking. Open up the bags. The light can get inside now. Which light source is illuminating the objects? Visit each bag again now they are open to the light. | **How do we see objects?**Key learning: Light reflects off an object and into our eyes.PZAZ: 3.11 Darkness, sunlight and reflection – activity ‘Reflection’Resources: Protractor, Paper, Ruler, 2 Mirrors, Toy Figure | **How does light travel?**Key learning: Light travels in straight lines from a light source.Practical learning: Cards lined up with holes punched in the same place. Model moving the card. Chn make simple observations about how the light travels.  | **Can light be dangerous?**Key learning: Looking directly at a bright light, especially the Sun, can damage the eye.PZAZ: 3.11 Darkness, sunlight and reflection – activity ‘What Material Makes the Best Lens for Sunglasses?’Resources: Different coloured cellophane, foil, various objects, torch, light meter (or iPad). | **What is a reflection?**Key learning: When light bounces off a surface and changes directionPZAZ: 3.11 Darkness, sunlight and reflection – activity ‘The Law of Reflection’ORPLAN examples of work Y3 – page 7/20 Comparative test of reflective surfaces(make link to real world – where are reflections used e.g. cats’ eyes, clothing) | **How are shadows formed?**Key learning: When light is blocked by an opaque object, a dark shadow is formed.PZAZ: 3.12 Shadows – activity ‘Does Everything Cast a Shadow?’Resources: Torch, Exercise Book, Plastic Bottle, Drinking Glass, Water, Pencil, Pencil Case, Aluminium Foil, Blue Tack, Any other object, Lining Paper, Sellotape. | **Are all shadows the same?**Key learning: Shadows can appear different sizes dependent on where the light source is.PZAZ: 3.12 Shadows – activity ‘Shadow Length Investigation’Resources: Graph Paper, Torch, Rectangular Block of Wood, Ruler. |
| **Year 3 Autumn: Forces and magnets (physics) 8** |
| **What are forces?**Key learning: Forces are pushes and pullsPractical activity: explore different pushes and pulls – chn to decide whether the action is a push or pull e.g. tug of war, hockey push pass, piano keys, running, rowing oars. Set up as a carousel with description of the activity \*without saying push or pull. | **What do forces do?**Key learning: Forces make things move, change direction and change shapePractical activity:  | **What is friction?**Key learning: Friction is the force that slows down objectsPZAZ: 3.9 Friction – activity ‘Shoe Friction’Resources: different types of footwear, force meters, different surfaces, 500ml bottles, 100ml measuring cylinders | **How do different surfaces affect the motion of an object?**Key learning: Some surfaces create more friction which slows objects downPZAZ: 3.9 Friction – ‘Ramps and Blocks’Resources: Pieces of stiff cardboard (0.5m long), 3 small wooden blocks (10cm x 3cm), aluminium foil, sandpaper, fabric, eraser. | **How do magnets work?**Key learning: Magnets produce a magnetic field which attract or repel objectsPZAZ: 3.10 Magnetism – activity ‘Magnetic Field Strength’Resources: 3 differently sized ball bearings, ruler, neodymium magnets, magnadur magnets, bar magnets, paper | **What are the magnetic poles?**Key learning: The end of the magnets are called poles. One end is the north pole and the other is the south pole.Practical activity: Make a compass/ treasure hunt activity (Twinkl) | **How do poles work?**Key learning: Opposite poles attract, like poles repel.PZAZ: 3.10 Magnetism – activity ‘Polar Opposites’Resources: bar magnets | **Which materials are magnetic?**Key learning: Objects that are magnetic are attracted to magnets. Iron and steel are magnetic.PZAZ: 3.10 Magnetism – activity ‘Magnetic Materials’Resources: Bar magnets, a variety of materials (both magnetic and non-magnetic) |
| **Year 3 Spring: Rocks (chemistry) 7** |
| **What are the different types of rock?** | **How are igneous rocks formed?** | **How are sedimentary rocks formed?** | **How are metamorphic rocks formed?** | **What are fossils?** | **What do fossils show?** | **What is soil?** |  |
| **Year 3 Spring: Plants (biology) 7** |
| **What are roots?** | **What is the stem/trunk?** | **What are leaves?** | **What are flowers?** | **What do plants need to grow?** | **How is water transported within plants?** | **How do flowers help the life cycle of flowering plants?** |  |
| **Year 3 Summer: Animals, including humans (biology) 9** |
| **What are the different groups of nutrients?** | **What are carnivores?** | **What are herbivores?** | **What are omnivores?** | **How do we move?** | **What does a skeleton do?** | **What is an endoskeleton?** | **What is a vertebrate?** |
| **What is an exoskeleton?** |  |  |  |  |  |  |  |