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|  | National curriculum | Lesson outline | Key questions | Key vocab | Factual knowledge | Scientific enquiry |
| 1/2 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Asking relevant questions and using different types of scientific enquiries to answer them. | Lesson 1 – Recap what children already know about skeletons. In this small step, children recap what they already know about skeletons. Naming the different bones they can remember. Go over the different bones within the body pointing out where they are on the body. Give children an outline of a human skeleton and they should be able to label the skeleton from learning within the lesson. Lesson 2 – Practical lesson – Floor book lesson. Give the children different pictures of bones. Ask the children to assemble the skeleton by gluing the pictures on a piece of paper. Then ask the children to label their picture. Skull, ribcage, femur, pelvis and spine.  | • How many bones are there in the human skeleton? • Where is the skull? • Where is the femur? • Where is the pelvis? • Where is the ribcage? • Where is the spine? | Skeleton, Skull, Ribcage, Spine, Pelvis, Femur | • The human skeleton is made up of lots of different bones. • An adult human typically has 206 bones that make up the skeleton. • The skull, spine (backbone), ribcage, pelvis and femur are bones within the skeleton. |  |
| 3/4 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | Lesson 1 - In this small step, children learn that humans have a skeleton for movement, support and protection. They build on their learning from the previous step as they progress to outlining the functions (or jobs) of the spine, ribcage, pelvis, skull and femur. It is important that children are aware of the function of the skeleton and also the jobs of specific bones. They should be able to describe the importance of humans having a skeleton with reference to movement, support and protection. Create a word bank with the name of the bone and the function. Lesson 2 – Practical lesson – Floor book lesson. Children work in pairs to draw around the outline of their partner’s body on a large sheet of paper. Children then correctly identify and label the locations of the bones. Then as a challenge children can write out the functions of the bones.  | • What are the functions of the skeleton? • Why is the skeleton important? • What is the function of the skull/femur/ribcage? • What would happen if humans did not have a spine? • What is similar about the skull and ribcage? What is different? | Skeleton, Skull, Ribcage, Spine, Pelvis, Femur, Function | • Bones have specific functions. • The skull protects the brain. • The femur helps humans to stand and move. • The pelvis helps to support the spine. • The spine helps humans to twist and stay upright. • The ribcage protects the heart and lungs. |  |
| 5/6 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory). | Lesson 1 - In this small step, children learn that some animals have a skeleton. They use their knowledge of bones in the human skeleton to identify, locate and name bones in a variety of animals. It is important that children are shown a wide range of animal skeletons including mammals, birds, fish, amphibians and reptiles. This allows them to label the bones of the skeleton and spot any similarities or differences between them. Lesson 2 – Practical lesson – Floor book lesson. Give children pictures of some bones from an animal’s skeleton. Ask them to assemble the skeleton by gluing the pictures on paper. They should then label the bones correctly | • What bones can you identify in this mammal/amphibian/ reptile/fish/bird skeleton? • How is the human skeleton similar to the skeleton of other mammals? Are there any differences? • Do each of these animals have a skull/spine/femur/pelvis/ ribcage? Where is it on the skeleton? | Mammal, Bird, Fish, Amphibian, Reptile | • Mammals, birds, fish, amphibians and reptiles have a skeleton. • Animal skeletons are made up of lots of different bones. |  |
| 7/8 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Talk about criteria for grouping, sorting and classifying (non-statutory). | Lesson 1 - In this small step, children look at animals that have a spine and animals that do not. Children should use the terms “with a spine” and “without a spine” when grouping animals, not “vertebrate” and “invertebrate” because this vocabulary is not introduced until Year 4. They are introduced to the term “exoskeleton” to describe an animal with a skeleton on the outside of its body. Children should explore a wide range of animals including insects, spiders, slugs and snails to allow them to further their understanding of animals with a spine and without a spine. Children continue to develop their answers to the enquiry question for this block by sorting and grouping animals in different ways. Lesson 2 – Using a flowchart children should think of an animal with or without a spine and work with partners to try and guess what animal they are thinking of by answering the yes or no questions.  | • Does a \_\_\_\_\_\_\_\_\_\_ have a spine? • What is an exoskeleton? What is its function? • Does a \_\_\_\_\_\_\_\_\_\_ have an exoskeleton? • How can you sort these animals without a spine into groups? How many ways can you group them? | Spine, Antenna, Insect, Exoskeleton | • Some animals have a spine. • Some animals do not have a spine. • Some animals have an exoskeleton. • An exoskeleton provides support and protection |  |
| 9/10 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions | Lesson 1 - In the final step of this block, children provide answers to the enquiry question “How can animals be sorted and grouped based on their skeletons?” They should identify, sort and group animals in different ways based on their skeletal systems. Children should consider mammal, bird, fish, amphibian and reptile skeletons when forming their answers. In addition to this, they could compare animals with and without a spine to develop a deeper understanding of skeletons. Children should be given opportunities to present their findings to a wider audience. This can include presentations, discussions and written responses.Lesson 2 – Floor book lesson. Split the class into small groups. Give each group an animal category. Children should become “skeleton experts” on the category they have been given. They also use knowledge from previous steps to form an answer to the enquiry question. Children should discuss and choose how they want to record their answers. They then present their findings to the rest of the group | • Does a \_\_\_\_\_\_\_\_\_ have a spine? • What is an exoskeleton? • Does a \_\_\_\_\_\_\_\_\_\_ have an exoskeleton? • What are the differences between the skeletons of a bird and a snail? • How can you sort and group these animals? How many ways can you think of? | Skeleton, Spine, Exoskeleton | • Animals have different skeletons. • All mammals, birds, fish, reptiles and amphibians have a spine. • Some animals do not have a spine.• Skeletons provide support and protection and allow movement.  |  |
| 11/12 | New topic – Movement• Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically − Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations (non-statutory). | Lesson 1 - In this small step, children build on their knowledge of the skeleton by looking at joints. Children identify two different joint types – hinge and ball-and-socket joints. They should identify and name the hips, elbows, knees and shoulder joints and decide whether these are examples of hinge or ball-and-socket joints. Children should understand that major bones in the human body are connected by joints, for example the hip joints connect the pelvis and femurs. By the end of this step, children should understand that joints allow the skeleton to move, and that without joints, humans would not be able to move. Within this step, children should have the opportunity to explore that many other animals have joints. They use simple diagrams of skeletons to identify and label the hip, elbow and knee joints in different animals. Lesson 2 – Practical lesson – Floor book lesson. Children make simple models to represent a hinge joint and a ball-and-socket joint. Polystyrene balls, wooden skewers and cups can be used to represent the different parts of a balland-socket joint. Skewers, cotton reels and elastic bands can be used to represent a hinge joint. | • What is a joint? • Why do humans have joints? • Where are your knee, hip, shoulder and elbow joints? • Do all joints allow the same movement? • What movement does a ball-and-socket joint allow? • What movement does a hinge joint allow? • Are humans the only animals with joints? Explain your thinking. • What would happen if a skeleton did not have joints? | Joint, hinge joint, ball-and-socket joint, skeleton | • A joint is where two or more bones connect. • There are different joints in the human body. • The knees and elbows are hinge joints. • The shoulders and hips are ball-and-socket joints. |  |
| 13 | • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. • Working scientifically – Communicate their findings in ways that are appropriate for different audiences (non-statutory). | In this small step, children learn how the skeleton, joints and muscles work together to allow movement. This step should be used to recap the names of the bones and the joint types identified in the human body. Children learn that muscles pull on bones to create movement. Muscles cannot push, which is why they work in pairs. Children learn the terms “contract” and “relax” to describe this process. In Year 3, children do not need to name and label major muscle groups in the human body. They identify and label only the biceps and triceps in the upper arm. Children can use labelled diagrams, simple practical models and relevant scientific language to show their understanding. | • What is the name of this bone? • What type of joint is the \_\_\_\_? • Where are your biceps? • Where are your triceps? • Which joints are your biceps and triceps attached to? • What does “contract” mean? • What does “relax” mean? • How do muscles work in pairs to allow movement? • What would happen if humans had no muscles/joints/skeleton? | Joint, muscle, bicep and tricep, contract, relax | Factual knowledge • Muscles are attached to bones. • Muscles can only pull on bones and cannot push. • Muscles work in pairs by contracting and relaxing. • Bones, muscles and joints work together to allow movement. |  |
| 14 |  | End of unit assessment, complete and send scored to ND for monitoring,  |  |  |  |  |