Year 3 Biological Science: Animals Including Humans (Skeletal and Muscular Systems) Unit 2

Scientific Model (KS2):

Big Picture Model

- Ensure the children understand the purpose and importance of the skeletal and muscular systems before studying the specific details of how the system works.

Scientific Investigations:

- Observing Changes over Time
- Looking for Naturally- Occurring Patterns and Relationships
- Identifying and Classifying Things
- Researching Using Secondary Sources
- Comparative and Fair Testing

Scientists:

- Marie Curie - famous scientist who developed the use of x-rays, which meant that a lot more patients could be correctly diagnosed and treated.

Scientific Skills Taught:

ASK
- To ask relevant questions
- To decide when to use secondary sources to find answers
- To make simple predictions based on knowledge of science

BREAKDOWN
- To set up simple tests
- To decide what equipment to use
- To make decisions about the type of enquiry
- To use different enquiry types to test questions

CAPTURE
- To observe carefully
- To measure accurately using standard units
- To measure using a range of equipment
- To gather data and record in different ways
- To make systematic observations
- To identify differences, similarities and changes
- To group, sort and classify using different criteria

DESCRIBE
- To draw simple conclusions
- To present data in different ways
- To explain what they have found out using correct scientific language
- To record finding using correct language in varied ways
- To answer questions based on evidence orally and in writing
- To suggest improvements to tests

Prior Learning:

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals. (Y1 - Animals, including humans)
- Identify and name a variety of common animals that are carnivores, herbivores, and omnivores. (Y1 - Animals, including humans)
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, and mammals, including pets). (Y1 - Animals, including humans)
- Find out about and describe the basic needs of animals, including humans, for survival (water, food, and air). (Y2 - Animals, including humans)
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans).

<table>
<tr><th>Curriculum</th><th>Learning Intention</th><th>Knowledge and Key Vocabulary</th></tr>
<tr><td><u>Making links to learning and discuss the model (if needed)</u>
- Focus on ensuring children see the bigger picture in order to understand why something happens.
- They need to see the purpose of a system to understand the importance of the parts of that system.</td><td colspan="2">What do we know about the skeletal and muscular systems?
Create Mind Map of what the children can recall from prior learning following key question prompts related to SGAPs and return to this and add on key learning as we progress through the unit.</td></tr>
<tr><td rowspan="2"><u>Knowledge and skills through investigations</u>
Pupils should be taught to:
- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection, and movement.
Notes and guidance (non-statutory):
- Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.
Pupils might work scientifically by:
- identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons.
- They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.</td><td>Do all living things need the same food?
• explain how plants obtain food.
• explain how animals, including humans, obtain food.
• explain the difference between food groups and types of nutrients.
• explain what types of nutrients humans need

Are having poor or limited diets dangerous?
• classify the problems/diseases associated with malnutrition.

Do all animals require the same nutrients?
• explain that different animals require different types of nutrients in different amounts
• understand the difference between omnivores, herbivores, and carnivores
• understand the difference between vegetarianism and veganism

Do all animals have skeletons?
• identify different types of skeletons
• explain the pros and cons of different types of skeletons
• sort animals based on their skeletons

Do all animals have the same types of bones?
• identify and name the main bones in the body
• use scientific names of bones
• compare the skeleton of a human and a different type of animal</td><td><u>Knowledge:</u>
- Know Animals need to eat in order to obtain the nutrients they need.
- Name the five main nutrients of food and their functions for animal consumption.
- Recognise and explain that animals, including humans, cannot survive without eating
- Recognise that animals need a balanced diet
- Name key bones of the human skeleton
- List four functions of the human skeleton
- Explain contraction and relaxation in muscle movement
- Name three different types of skeleton and an example of an animal for each</td></tr>
<tr><td><u>Vocabulary:</u>
- Food groups; composite foods; balanced diet; protein (food for growth); fats & carbohydrates (foods for activity); vitamins, minerals, and fibre (foods for health); whole grain; energy; food plate; food pyramid.
- carnivore; omnivore; herbivore; vegetarian.
- perspiration; sweat; pulse rate.
- skeletons; support; protection; movement; organs; muscles; function; structure; vertebrate; vertebrae; invertebrate; oxygen; carbon dioxide; relax; contract; heart; lungs; brain; ribs; skull; bones; spine; joints; attached; femur; patella; tibia; fibula;</td></tr>
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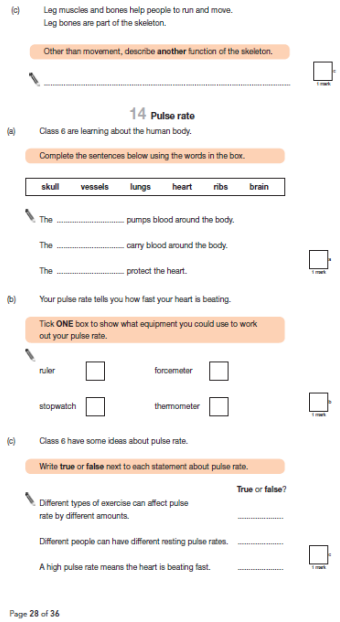
	What are the functions of the skeleton? • identify parts of the skeleton that protect the body • identify parts of the skeleton that support the body and help it move • explain how different parts of the skeleton work How do muscles help you move? • examine how muscles work • explain how muscles allow movement • identify pairs of muscles in the body	radius; ulna; digits; tarsals; humerus; clavicle; scapula; skull; spine
Application and Assessment Activity **Twinkl –End of Unit Test** **Also from 2014 Sample Test Booklet**	Twinkl –End of Unit Test. 2014 Sample Test Booklet. 	

(c) Leg muscles and bones help people to run and move.
Leg bones are part of the skeleton.

Other than movement, describe **another** function of the skeleton.

.....

1 mark

14 **Pulse rate**

(a) Class 6 are learning about the human body.

Complete the sentences below using the words in the box.

skull	vessels	lungs	heart	ribs	brain

The ..... pumps blood around the body.

The ..... carry blood around the body.

The ..... protect the heart.

1 mark

(b) Your pulse rate tells you how fast your heart is beating.

Tick **ONE** box to show what equipment you could use to work out your pulse rate.

ruler ☐ forcemeter ☐

stopwatch ☐ thermometer ☐

1 mark

(c) Class 6 have some ideas about pulse rate.

Write **true** or **false** next to each statement about pulse rate.

	True or **false**?
Different types of exercise can affect pulse rate by different amounts.	.....
Different people can have different resting pulse rates.	.....
A high pulse rate means the heart is beating fast.	.....

1 mark

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Thinking Deeper:

- Watching different animals moving, children identify where the largest muscles in the body is for different animals, compare and analyse why.

Links to other subjects:

- Subject Specific links –
  - Design Technology – preparing a balanced healthy snack.
  - Literacy – explanation texts, non-chronological reports.
- Personal Development – Learning to help yourself in terms of good diet and nutrition
- SMSC – Healthy bodies and positive mental health
- Cultural Capital – Some people have difficulty accessing a balanced diet in terms of famine and natural disasters; in richer countries the problem is excess where increased obesity is a major cause of health problems.
- Careers – Visiting Doctor to explain the function of the skeleton, Bike It Ben
- British Values – Poor and limited diets cost our NHS millions of pounds in dealing with the consequences.
- Equality - Promotion of both men and women as scientists.