YEAR 3 UNIT 2: Food and Our Bodies (Animals Including Humans)

Enquiry Question: Why is a balanced diet important?

Related units: Year 2: Healthy Me: Year 2 Little Masterchef – How do you keep healthy?
Year 4: Teeth and Eating - Why do we need different types of teeth?

Unit overview

National Curriculum Link Year 3: Animals including Humans.
Children will 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. They will identify that humans and some other animals have skeletons and muscles for support, protection and movement. Children will continue to learn about the importance of nutrition and be introduced to the main body parts associated with the skeleton and muscles and their functions.
This builds on what children already know: how to identify different parts of the body / what humans need to survive (Year 1) and how to keep healthy / what is a balanced diet (Year 2). They also know how different things move and the role of the skeleton. Children already know that animals and humans need food to survive (Year 2 and that it's important to eat the right types of food (Year 2).

Scientific vocabulary

- Nutrients
- Protein
- fats
- Balanced diet
- Carbohydrates
- Skeleton
- Contract
- Relax
- Muscle
- Joint
- Spine
- Pelvis
- Femur
- Humerus
- Exoskeleton

Working scientifically

Working Scientifically:

- 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.
- Comparing and contrasting the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.
- Researching different food groups and how they keep us healthy and designing meals based on what they find out.

Assessment (Expectations)

1. Identify 4 different food groups and how they make up a balanced diet
2. Explain the importance of the skeleton and muscles
3. Name the different parts of the skeleton
4. Name 3 animals with a skeleton and 2 animals without

Cross-curricular links

English: Plan and write up an investigation.
Maths: Gather, record and present data in different ways (tally and bar chart)
PSHE: Creating a food diary to learn about healthy eating.

Teacher knowledge

Food: Unlike plants, which make their food by photosynthesis, animals (including humans) can't make their own food. Instead, they have to get their food by eating plants or other animals. The food we eat can be divided up into different groups. There are various ways of doing this, but we recommend you use the following groups: fruit and vegetables bread, rice, potatoes, pasta (starchy foods) milk and dairy meat, fish, eggs, beans (protein) fat and sugar.

A balanced diet: should contain all these different food types, as well as vitamins, water and fibre. Sugar and starch are known as carbohydrates. These are broken down by our bodies to become a source of energy. Our bodies also store fats until they're needed to give us energy. And at the same time, fats act as insulation to help keep us nice and warm. Proteins are needed for growth and to repair the body when it gets damaged. Our muscles, tendons, skin and hair, as well as all the enzymes in our bodies, are all made from proteins. Our food also contains lots of minerals, which are useful in many ways. For instance, the milk in your cup of tea, cheese in your sandwich and other dairy products contain calcium, which helps build healthy bones and teeth. And meat and vegetables like broccoli contain iron, which makes the haemoglobin found in our red blood cells.

The skeleton: is a strong, rigid structure inside our bodies made of bone. Bone is living tissue made from bone cells, collagen and minerals such as calcium phosphate. The bones of our skeleton provide us with a strong structure which supports and protects the rest of the body. The ribs form a protective structure around our heart and lungs. Meanwhile, the skull protects our brains. Inside our bones is a spongy tissue called bone marrow, which is where red blood cells are made. Strong elastic groups of fibres known as ligaments join our bones together.

Cartilage: This is the elastic, slippery protein which covers the ends of bones at joints, allowing them to move freely. Our noses and ears are made from cartilage. And some fish, such as sharks, even have whole skeletons made of it. Another fact that might surprise you is that as babies we are born with around 300 bones, but as we get older some of these fuse together into large bones. So by the time we are adults, we only have 206 bones. You may already know that some creatures such as crabs, lobsters and insects have a tough external skeleton, or exoskeleton. But what you might not realise is that this is often made from a protein called chitin. Don't forget – bone needs a blood supply, just like every other tissue in our bodies.

Joints: are the places where bones meet, allowing the skeleton to move. Our bones are held together with ligaments. The ends of our bones are coated with cartilage, which helps reduce friction. There are various types of joint, each allowing different types of movement: The elbow and knee are simple hinge joints, allowing basic movement in a single plane. The shoulder and hip bones are 'ball and socket' joints which allow rotation in more than one plane. Sliding joints like the ankle and wrist allow for limited rotation at the joint. Fixed joints are ones that are fixed and do not allow movement, such as the joints between the various bones in the skull. Bones are moved using muscles.

Muscles: These muscles are attached to our bones by tendons – strong, inelastic strips of tissue. Muscles can contract and get shorter; this pulls on the tendon and makes the bone move. They work in pairs – one muscle contracts and pulls in one direction, then another contracts and pulls back while the original muscle relaxes. Muscles do not always attach to bone; some do things such as move the eyes. Remember – the heart is a ball of muscle which pumps blood around the body.

Bones: A bone needs a blood supply, just like every other tissue in our bodies.

Did you know?

- The tongues of giant anteaters are over 60cm long and covered in sticky saliva. They poke them deep into ant hills and snatch up the ants that stick to them.
- The biggest animal on the planet, the blue whale, eats some of the smallest, tiny shrimps, called krill. A blue whale can eat 40 million krill in a day.
- A human and a giraffe have exactly the same number of bones in their neck. A giraffe's bones are just bigger.
- The human body has 206 bones in it. Babies have a lot more, around 300 bones, but many of them fuse together as they get older.
- The largest muscle in your body is called the gluteus maximus. You know it better as your bottom.

Common misconceptions:

- Children might think that bone is a dead material. In fact, it's made from living cells. That's why bone can heal itself it it's broken or fractured.
- Children might think that we only eat food to give us energy. In fact, food does a whole lot more, including providing the vitamins and nutrients we need to keep our bodies healthy.

- They could think that all fats are bad for us. But the fact is, we need a certain amount of fat in our diet for many different reasons, including building cells, helping nerves carry messages, protecting our organs and heat insulation.
- Children might think that bone is a dead material. In fact, it's made from living cells. That's why bone can heal itself if it's broken or fractured.
- They might think that muscles can push – in fact, they can only pull. But our bodies can push things because of the way the muscles pull on different bones.

Resources

www.foodafactofife.org.uk/
www.foodiesforschools.com/
http://marathonks1.lgfl.org.uk/modules/t1_team_
www.exploringnature.org/db/detail.php?dbID=24&detID=687
www.getinthezone.org.uk