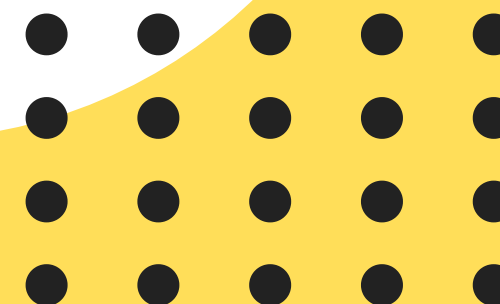




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**Welcome to Sciene class:**

# **Science 8 :**

## **Chapter 7: Diet and growth**

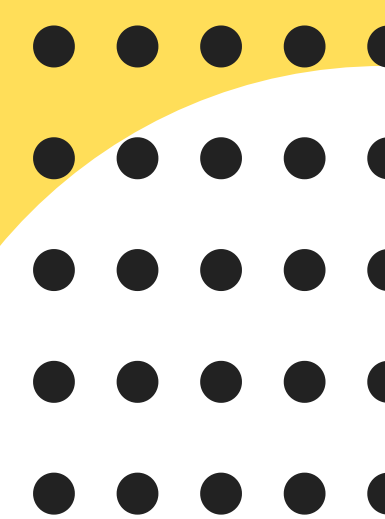
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# Objectives: 7.1–7.2

## WHAT YOU NEED TO KNOW:

- 3 main groups of nutrients + The roles of each group
- Roles of different Vitamins and Minerals
- Source of each nutrient.
- What is a balanced diet?
- How to eat healthy every day.



# Carbohydrates, fats and proteins



## Proteins:

- Large chains of amino acids
- 20 types of amino acid
- Where to find: meat, fish. eggs. beans...

=> help the body to grow and repair cells

=> Making antibodies & Haemoglobin .

## Carbohydrate:

### Complex Carbohydrate: Starch (Insoluble)

- Where to find: Rice, noodles, bread
- Will be broken down into **Simple carbohydrate**

### Simple Carbohydrate: Glucose (Soluble)

- Use as fuel that cell use for respiration

=> Release energy for living organism

## Fats and oils:

Fats: Solid and Oils: Liquid at room temperature

Insoluble

Where to find: Butter, avocado, cooking oil,...

=> Store energy

=> Provide energy

=> Make cell membranes



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# *HOW ENERGY IS STORED?*

## **Short term storage:**

Cell in Liver - and Muscle

## **Long term storage:**

Fats underneath your arms, belly, ...  
Around some organs.

## **Fats help heat insulation**

Example: Seal is living in very cold area, but his fats around his body keep him feel warm.

# Vitamins and Minerals

## Vitamin A

### Where to find:

green vegetables, carrots and squash (pumpkin), fruit, from milk, cheese, fish

### Role:

- Better eyes, better vision
- White blood cells to fight pathogens.

## Vitamin C

### Where to find:

citrus fruits, potatoes, berries, vegetable

### Role:

Increase immune system  
Strong skin, blood vessels and bones are healthy.  
Lack: scurvy: gum bleeding, weakness

## Vitamin D

### Where to find:

Oily fish, sunlight

### Role:

Make strong bones and teeth.  
Lack: Ricket: Weak bones, easy to be broken/ slow growth





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# Vitamins and Minerals

## Iron

### Where to find:

Red meat, dark green vegetables, fish, shellfish, nuts,

### ..Role:

- Make haemoglobin for Red blood cell
- Lack: Anaemia: Feeling tired

## Calcium

### Where to find:

Milk, Dairy Products, Some nuts

### Role:

- Strong bones and teeth



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WATER:

**90%**

your weight is water

**Role:**

- Dilute substances for chemical reaction
- Transport substance in body
- Blood flow easily

**1** Copy and complete this table.

Nutrient	Examples of foods that contain a lot of this nutrient	Why the body needs this nutrient
Protein		
Carbohydrate		
Fat		

**2** Explain the difference between the meanings of the words ‘food’ and ‘nutrient’.



## Questions

- 3** Look back at question 1. Draw a similar table, but include vitamin A, vitamin C, vitamin D, calcium and iron instead of protein, carbohydrate and fats.

Then complete your table.

- 4** Use your knowledge about respiration to explain why a person with anaemia does not have much energy.

- 5** These bell peppers are stuffed with beef mince and vegetables, and topped with cheese. They contain a lot of iron and calcium.

What other nutrients do you think this meal contains? Explain your answer.

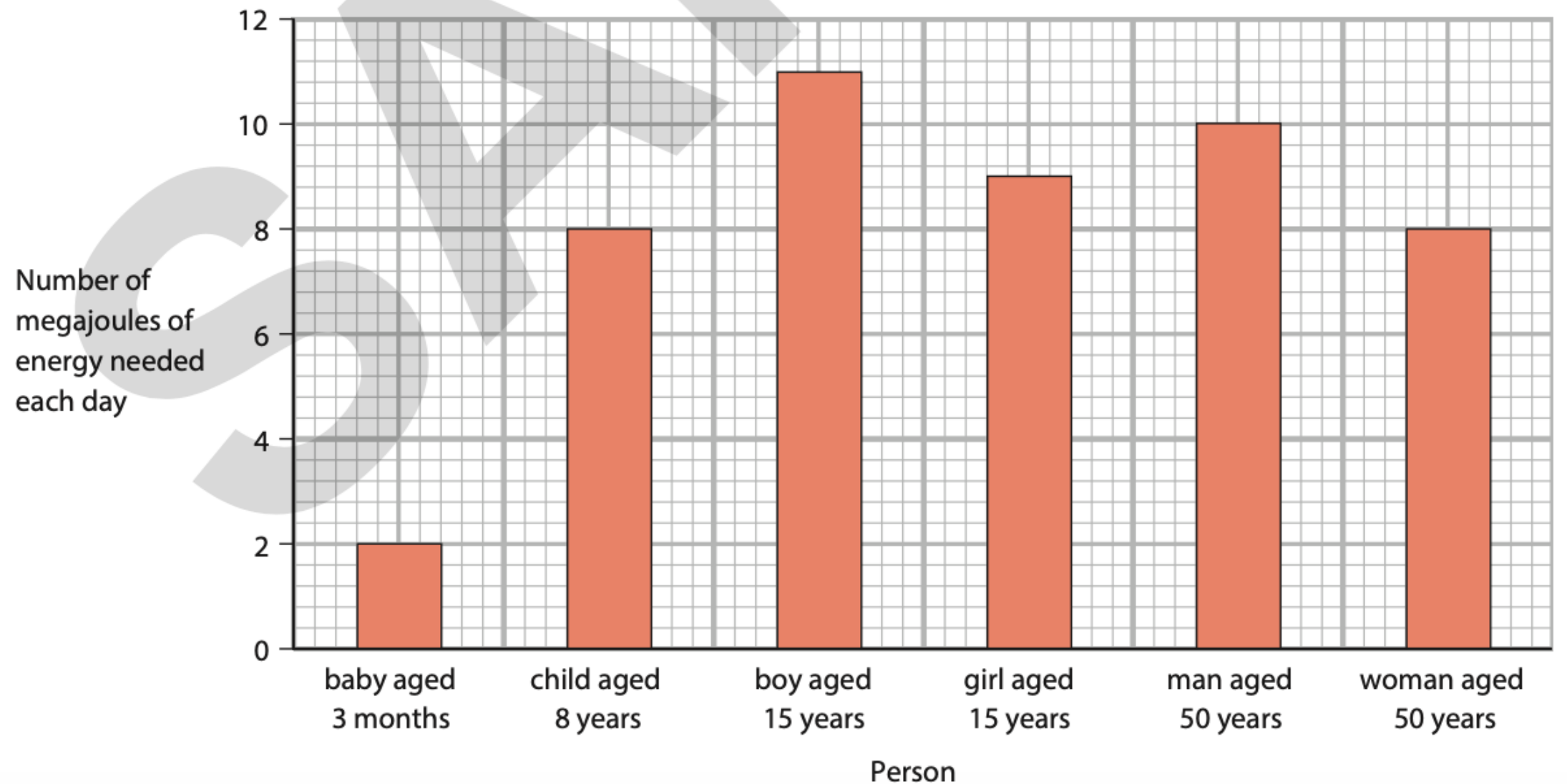


## 7.2: BALANCE DIET

A diet that provides all the different kinds of nutrients, and the right amount of energy, is called a **balanced diet**.

### Factors:

- Age
- Job
- Gender
- Sport/Activities
- Short/Tall
- Metabolism





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## Questions

Use the bar chart in Figure 7.2.1 to answer these questions.

- 1** How many megajoules of energy does an eight-year-old child need, on average?
- 2** Explain why some eight-year-old children might need more energy than this.
- 3** Explain why some eight-year-old children might need less energy than this.
- 4** Suggest why a man aged 50 years needs to take in less energy in his diet than a boy aged 15 years.
- 5** Suggest why most 15-year-old girls need less energy in their diet than most 15-year-old boys.

# Get some examples of diets in different people

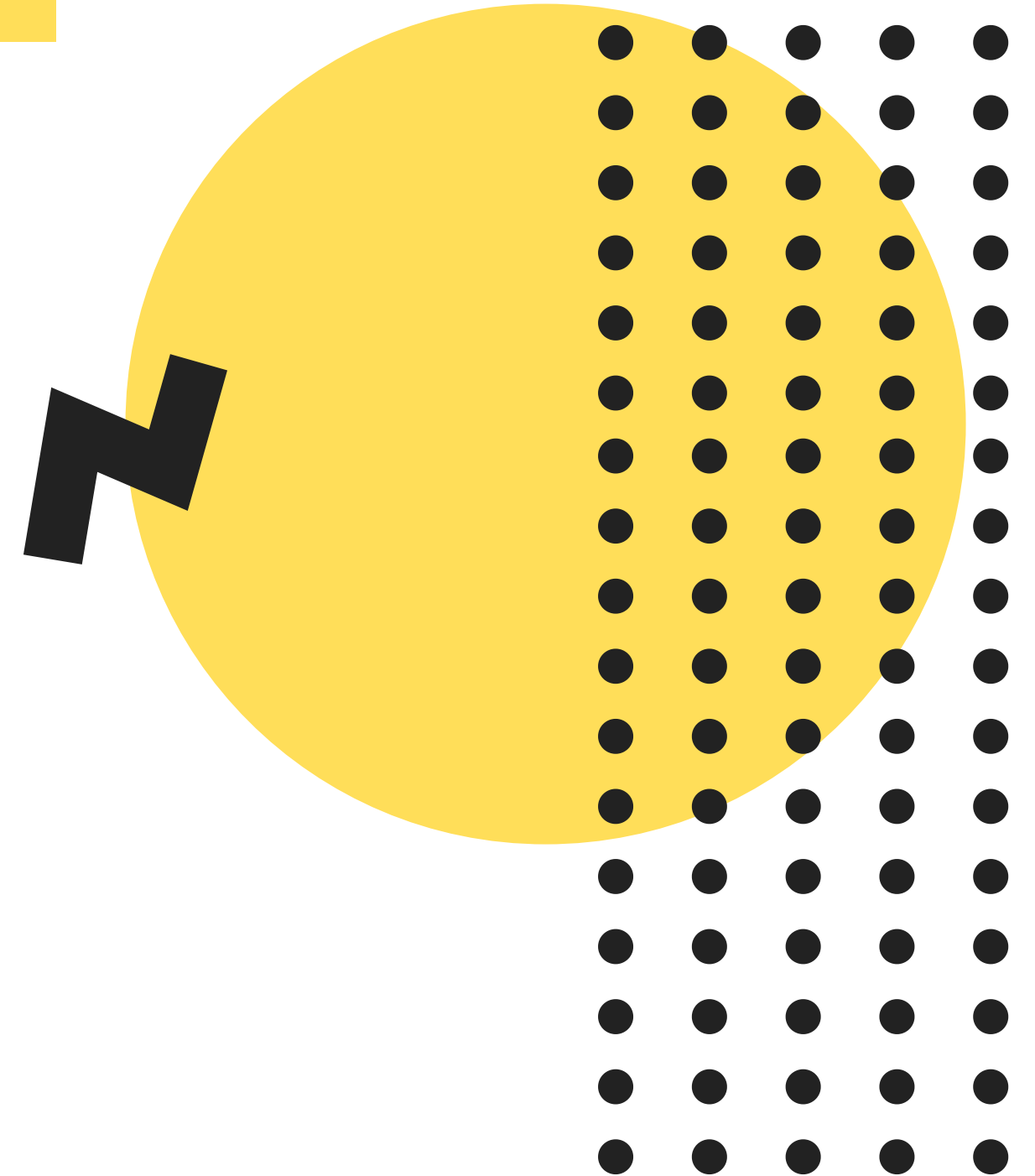


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# Fibre

## VERY IMPORTANT

- Do not digest in your body/ Travel around digestive system
- Where to get: vegetables, fruits, ...
- Fibre: Cellulose in Cell wall, mostly in plant cell
- **Why is important?**
- Clear your intestine
- Lack of Fibre:
- Constipation : Faeces stays insides / cannot passed out

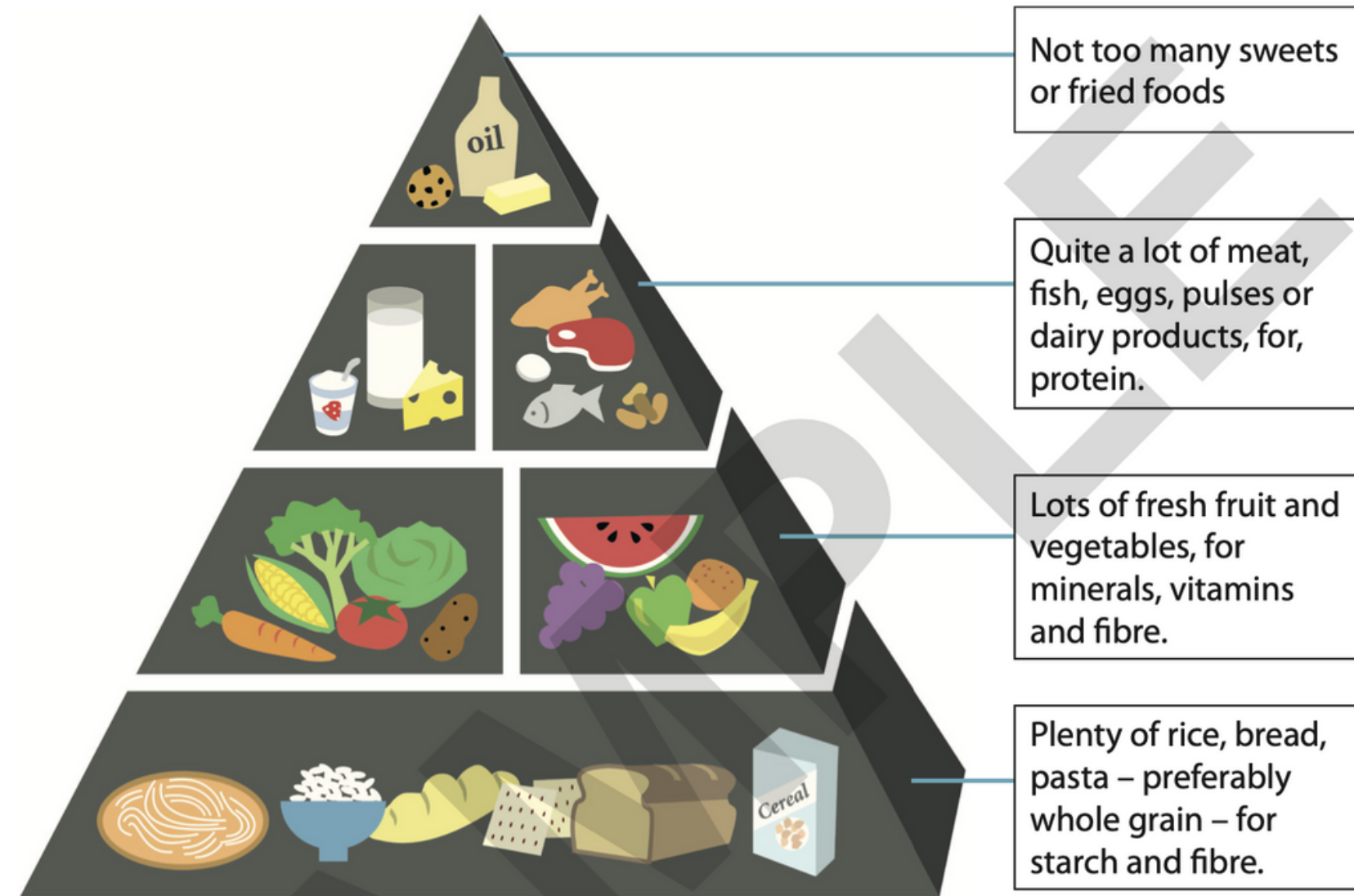






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- Too much sugar: teeth decay, risk of developing an illness called diabetes.
- Too much fat, oil, or carbohydrate => put on weight/ Strain on your joints, heart, and other body organs.
- Eating too many fats that come from animals: Risk of heart disease.



Look at the picture of the food triangle.

- Explain why sweets and fried foods are at the top of the triangle.
- Explain why it is better to eat whole-grain bread, or brown rice, rather than white bread or rice.
- Suggest how you can make sure you get enough protein in your diet, if you don't like eating meat or fish.

Your little brother's favourite meal is a burger and fries, with a sweet milky drink.

- What nutrients does he get from this meal?
- What else should he include in his diet?
- Explain to him why he should not eat his favourite meal too often.



# **Homework:**

## **File: Homework, Diet and growth (7.1-7.2)**

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