

How are medicines made?

Background

This session aims to introduce students (aged 5-11) to drug development and how medicines are made. Students will explore what medicines are, how are they taken and where they come from. This session should be used in conjunction with the 'Primary- Drug development PPT' PowerPoint presentation.

What are medicines and why do we need them?

(Slide 1) Title slide. **(2)** Begin by asking the students to suggest what a medicine is. What does it do? Take suggestions and explain that medicines can also be called drugs. They affect how our bodies work and different medicines have different jobs or targets in our body.

Our body naturally fights off illness, for example, you may have a cold that lasts about a week before it clears up, even without medicine. Medicines can help our bodies to fight off illness, infections and disease. We also take some medicines to stop us getting ill in the first place. You would have had a number of these when you were a baby to protect you from getting some diseases.

For upper primary school age groups, you may also like to introduce some terms and examples: If we fell over and cut our arm quite seriously, we may take antibiotics to stop bacteria growing and making us ill. Vaccines are the type of medicine we take to protect us from diseases we may get in the future.

Explain that medicines also help us feel better, for example, stopping headaches or other pain we may experience.

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(3) Ask the students to suggest ways in which you can take medicine. Take suggestions and then go through the list. You may wish to supplement the information, for example, Calpol for drink, cream for problems that may affect the skin and people use inhalers for conditions such as asthma (where they find it hard to breathe).

Activity - Where do medicines come from?

In the next activity, students will perform a roleplay to explore where medicines come from (backwards from patient through to discovery of natural products).

(4) Begin by showing the students the 8 different roles within the medicine developing process. This activity can be run as a whole class or in groups (8 people).

Inform the students that they should put the roles in the correct order, beginning with the patient. (For younger students it may be helpful to print out this slide and cut it out in advance for them to arrange in the correct order.)

(5) Invite volunteers to act as patients and ask them to suggest ideas for what is wrong with them. You could then give the students plasters or bandages.

(6) Confirm that the first step in the medicine developing process is the patient i.e. you are looking to develop a medicine to help the patient.

Ask the student (patient) who the next person in the chain will be. Where does the patient go if they are feeling unwell?

(7) Take suggestions leading to answer of doctor. Ask the students what a doctor wears e.g. white coat, stethoscope, pen, paper pad. Invite volunteers to act as doctors. Ask the students what questions a doctor is likely to ask a patient. Take suggestions and go through those provided. Inform the students that the doctor may give the patient a signed note which says what medicine is needed (prescription).

(8) Confirm that the second step in the medicine developing process is the doctor i.e. the patient will go see the doctor to help when they are feeling unwell. Ask the students who the next person in the chain will be. Where does the patient go once they have the prescription from the doctor? Is there anywhere on the high street that you can and pick up medicines?



Activity - Where do medicines come from? - cont.

(9) Take suggestions leading to answer of pharmacist. Ask the students what a pharmacist would wear e.g. white coat. Invite volunteers to act as pharmacists. Ask the students to suggest what a pharmacist does. Take suggestions and go through those provided.

(10) Confirm the third step in the medicine developing process is the pharmacist i.e. the patient will go see to the pharmacist to pick up the medicine. Ask the students who the next person in the chain will be. How does the medicine get to the pharmacist?

(11) Take suggestions leading to answer of lorry driver. Ask the students what a lorry driver would wear e.g. Hi Vis, hat, gloves. Invite volunteers to act as lorry drivers. Ask the students to suggest what role the lorry driver takes. Take suggestions and go through those provided.

(12) Confirm the fourth step in the medicine developing process is the lorry driver i.e. the medicines are delivered to the pharmacist by the lorry driver. Ask the students who the next person in the chain will be. If there are many patients, a large amount of medicine will be needed. Where does all this medicine get made?

(13) Take suggestions leading to answer of factory worker. Ask the students what a factory worker would wear e.g. Hi Vis, hard hat, clipboard, pen. Invite volunteers to act as factory workers. Ask the students to suggest what the factory work does. Take suggestions and go through those provided.

(14) Confirm the fifth step in the medicine developing process is the factory worker i.e. medicines have to be made in large amounts in factories. Ask the students who the next person in the chain will be. How do you know the medicines are safe and that they work? Do they need testing?

(15) Take suggestions leading to answer of testing team or clinical trials teams. Ask the students what a clinical trials team might wear e.g. lab coat, clipboard, pen. Invite volunteers to act as members of the clinical trials team. Ask the students to suggest what the clinical trials team do? Take suggestions and go through those provided.

(16) Confirm the sixth step in the medicine developing process is clinical trials team i.e. medicines have to be tested to make sure they work well and are safe. Ask the students who the next person in the chain will be. Who makes the medicines in the first place? Who would work out what is going wrong in the body when we are ill?

(17) Take suggestions leading to answer of scientist. Ask the students what a scientist in a laboratory would wear e.g. lab coat, goggles, gloves. Invite volunteers to act as scientists. Ask the students to suggest what the scientist does. Take suggestions and go through those provided.

(18) Confirm the seventh step in the medicine developing process is the scientist i.e. scientists investigate what is going wrong in the body and develop a medicine to treat that problem. Ask the students who the next person in the chain will be.

(19) Take suggestions leading to answer of research explorer. Ask the students what an explorer would wear e.g. explorer hat, camouflage, sample bottles. Invite volunteers to act as researcher explorers. Ask the students to suggest what the explorer does. Take suggestions and go through those provided. Inform the students that in some cases, medicines can be found in nature. The scientists then change those medicines so they can be taken by humans safely.

(20) Confirm the eighth step in the medicine developing process is the research explorer i.e. some medicines are developed from natural substances found in the environment around us. Go through all the steps in the medicine making process.

Further information & Resources

Materials suggested

- Bandages, plasters
- Lab coats, stethoscopes, goggles, lab gloves
- Clipboard, pen, paper pad
- High Vis, hard hats, gloves
- Camouflage, safari hat, sample bottles

Further information on drug development

Association of the British Pharmaceutical Industry - www.abpschools.org.uk

