



My  
World of  
Work  
*LIVE!*



# Medibots

## Healthcare Science



# Classroom Clash: Medibots

## Introduction

Welcome to Classroom Clash! This suite of nine games has been designed to inspire pupils to think about possible future careers.

Each game is linked to an industry important to Scotland's economic growth and where there are lots of opportunities for interesting and successful careers. By playing Classroom Clash, your pupils will be introduced to meta-skills and will start to recognise how these skills can be used in lots of different jobs.

Industries explored within Classroom Clash include:

- **Early Learning and Childcare**
- **Health and Social Care**
- **Construction**
- **Digital Technology**
- **Finance**
- **Manufacturing**
- **Life and Chemical Sciences**



# Classroom Clash: Medibots

## Learning objectives

Using the Medibots game and [My World of Work](#), you will explore careers in the healthcare and life sciences industries, and discover what skills are required to work in these important sectors. You will learn what roles are available within these industries, how vaccines are produced and the importance of new technology within the medical sector.

**Follow the instructions to create specialised medicines and nano-bots so you can help to fight diseases in your patients.**



## Success in this lesson will look like:

- I can identify the different meta-skills needed to work within the healthcare industry
- I can give examples of careers related to healthcare and life sciences
- I understand the process involved in vaccine production
- I understand the need for new technology within the medical sector and the idea of nanotechnology and its uses
- I understand what healthcare career opportunities there are in Scotland

# Classroom Clash: Medibots

## Curriculum links

**Sciences:** SCN 2-12a; SCN 3-12b; SCN 3-13c;  
SCN 4-16a

**Literacy:** LIT 2-04a; LIT 2-07a; LIT 3-07a

## Meta-skills

**Self-management:** **Focusing**

**Innovation:** **Sense making; Critical thinking**

## How did your school do?

- Once the game is finished, input your score to the leaderboard
- Check how well your school has scored compared to others across the nation
- Play again to try and beat your high score!

★ **Well done!** ★  
Your final score is  
**8000**

Enter your details to submit your score to the leaderboard

Please note by entering your details, your information will display on the leaderboard and be visible to everyone who selects your school. If you do not want your name displayed, please choose an alias to use instead.

Select your year group

Please select a school

Type your first name here

Submit my score

[Privacy notice](#)

# Classroom Clash: Medibots

## Follow on learning – 10 min activity

- Using the **Explore careers** profiles on **My World of Work**, find three careers related to the healthcare industry and give a brief description of each and where they might work
- From the careers you found on **My World of Work**, list some of the skills you need to work in the healthcare sector
- What subjects do you think would be most useful for working in the healthcare industry?

## Additional classroom activities

- **Design a drug:** challenge pupils to design a drug for a specific disease, considering factors like drug delivery and side effects
- **History of vaccines:** ask pupils to research vaccines – what was the first vaccine and who invented it? How did they carry out their research? Split the class into groups and assign a vaccine each for them to research and present their findings e.g info poster, class presentation
- **Make a vaccine:** print out the worksheet on the following page and ask pupils to put the steps in the correct order. Encourage pupils to research first so that they are aware of the manufacturing and testing side to help with their decision (answers are given for your knowledge)





# Make a Virus Worksheet

- **New virus alert:** a new virus has been detected called ICV. ICV spreads quickly and can kill people before medicines have the chance to work. PharmaCell is a pharmaceutical company trying to develop a new vaccine against the virus, called Anti-ICV. A new vaccine would give people the ability to fight the virus, known as immunity. Help PharmaCell find a new vaccine by putting the stages of vaccine production in the correct order.

Anti-ICV is tested on up to 30 healthy volunteers. Half of the volunteers receive a placebo whilst the others receive Anti-ICV.



It's important to find out:

- if the new vaccine creates the desired immune response
- the dose of vaccine to use
- if the new vaccine is safe
- how the volunteers' bodies cope with the vaccine

Anti-ICV is tested on hundreds of healthy volunteers.



It's important to find out:

- if the new vaccine creates the desired immune response
- if the vaccine dose is correct
- if the new vaccine is safe

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- if the new vaccine creates the desired immune response
- if the vaccine dose is correct
- if the new vaccine is safe

PharmaCell are awarded a license to mass-produce the Anti-ICV vaccine.



There are enough data to show that the vaccine protects people from ICV and is safe to use. Anti-ICV is produced and sent to hospitals, health centres, travel clinics and doctors' surgeries around the world.

PharmaCell scientists study ICV and the people infected with ICV.



Understanding the virus and how it infects people will help them to design a new vaccine.

The scientists create a new vaccine, 'Anti-ICV', by using a live but weak ICV virus.



When the weak ICV virus is given to people they develop the ability to fight the virus without developing the disease (known as an immune response). Their body remembers how to fight the virus if they become infected in the future. This is known as immunity.

Scientists test 'Anti-ICV' samples in cells.



Live vaccines are tested in cell culture to ensure they:

- Are not toxic
- Do not cause the disease
- Create a specific cell response

'Anti-ICV' is tested on animals.



The immune system involves many types of cells. Animals such as mice and rats have very similar immune systems to people, and are better models than cultured cells. Testing Anti-ICV on animals helps to ensure that the vaccine produces a desired immune response.

# Classroom Clash: Medibots

## Answers

1.

PharmaCell scientists study ICV and the people infected with ICV.



Understanding the virus and how it infects people will help them to design a new vaccine.

2.

The scientists create a new vaccine, 'Anti-ICV', by using a live but weak ICV virus.



When the weak ICV virus is given to people they develop the ability to fight the virus without developing the disease (known as an immune response). Their body remembers how to fight the virus if they become infected in the future. This is known as immunity.

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Scientists test 'Anti-ICV' samples in cells.



Live vaccines are tested in cell culture to ensure they:

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'Anti-ICV' is tested on animals.



The immune system involves many types of cells. Animals such as mice and rats have very similar immune systems to people, and are better models than cultured cells. Testing Anti-ICV on animals helps to ensure that the vaccine produces a desired immune response.

5.

Anti-ICV is tested on up to 30 healthy volunteers. Half of the volunteers receive a placebo whilst the others receive Anti-ICV.



It's important to find out:

- if the new vaccine creates the desired immune response
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Anti-ICV is tested on hundreds of healthy volunteers.



It's important to find out:

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7.

Anti-ICV is tested on thousands of healthy volunteers.



It's important to find out:

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- if the vaccine dose is correct
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# Classroom Clash: Medibots

## Related careers

- Hospital doctor
- Pharmacologist
- Materials engineer
- Microbiologist
- Robotics engineer
- Clinical engineer

## Useful healthcare links

- NHS Scotland Careers
- Life Sciences in Scotland
- Industrial Biotechnology Innovation Centre
- Royal Society of Biology
- Scottish Life Sciences Association
- Scottish Universities Life Sciences Alliance

## Sectoral Skills Assessments




- Health Care
- Life and Chemical Sciences





# Find your route...

## When it comes to your career, there are so many possibilities

- Use [My World of Work](#) to find out about different options
- Research different colleges or universities for any courses that interest you:
  - [Colleges in Scotland – list of members](#)
  - [Universities Scotland – list of members](#)
- Look at [Apprenticeships.scot](#) to learn about the pathways that are available. You can start an apprenticeship whilst still at school and you work towards gaining a qualification while on the job. There are 3 options available:
  - **Foundation Apprenticeship** 
  - **Modern Apprenticeship** 
  - **Graduate Apprenticeship** 



# Next Steps

## Interested in learning more about this sector?

- Make an appointment to speak to your school careers adviser
- Check out the related [Healthcare](#) and [Life Sciences](#) industry pages on [My World of Work](#)
- Do some research on related careers by checking out the Explore careers pages on [My World of Work](#)
- Listen to industry experts explain their roles within the sector by watching the [Virtual Meet the Expert](#) videos
- Find out about routes into work and careers by checking out [Apprenticeships.scot](#)

