

# Meet a STEM Professional - Active reading and listening tasks





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## KEYWORDS

Medicinal  
Chemistry

## ABOUT THE TASK

This is an active listening and reading task, that uses the SEEC model to develop understanding of key words. It is designed to inspire pupils to develop questions to ask James about his career journey to becoming a STEM professional.

## ENGAGE



Ask the pupils to watch the video in full.

Then watch again, stopping at 4min 20seconds

Use the SEEC model to develop understanding of key words, and to encourage the pupils to develop questions to ask James about his career journey to becoming a STEM professional.

SEEC = select, explain, explore, consolidate



[www.youtube.com/watch?v=7AFGQkNLz1U](https://www.youtube.com/watch?v=7AFGQkNLz1U)

# ABOUT JAMES - SUMMARY

- James' job involves mixing chemicals together to make new molecules that could help other scientists understand more about how to treat certain diseases.
- James points out the most important word in science is why. If you've ever wondered why something happens, you are already on the road to becoming a scientist
- He started aged 4 making potions, flying paper aeroplanes and making parachutes for his toys
- An initial interest in space, planets and the solar system led him on to study chemistry at school
- Further study of Chemistry for his undergraduate degree at University of York and her really loved the lab work
- James would like to people to have a better understanding of the science behind the headlines and emphasises you don't need to be a scientist as a career even with scientific qualifications.

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**KEYWORDS**  
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**WATCH**  
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**ABOUT JAMES**  
**HIS JOB**  
Involves mixing chemicals together to make new molecules that could help other scientists understand more about how to treat certain diseases. James points out the most important word in science is why. If you've ever wondered why something happens, you are already on the road to becoming a scientist. He started aged 4 making potions, flying paper aeroplanes and making parachutes for his toys.

James is interested in space, planets and the solar system which has led him on to study chemistry at school. He went on to do an undergraduate degree in Chemistry at The University of York and he really loved the laboratory work.

James would like to people to have a better understanding of the science behind the headlines. He says you don't need to be a scientist as a career even with scientific qualifications!

**HIS HOBBIES**  
James is a massive fan of Manchester United Football Club, and goes to every home game at Old Trafford. He also trains to be a volunteer vaccinator with St John Ambulance!

**THE QUESTION JAMES WANTS TO ANSWER IS...**  
Can I make some molecules which stop our body overreacting to certain diseases and making things worse?

**JAMES' QUESTION FOR YOU...**  
How many times do you see science in your everyday life?

## KEYWORDS

Medicinal  
Chemistry

# ACTIVE LISTENING

Access the Collins CoBuild dictionary to help with pronunciation, definitions and synonyms. Visit [www.collinsdictionary.com/](http://www.collinsdictionary.com/)

## 1. SELECT

James describes his job as a PhD researcher in **Medicinal Chemistry** and working with molecules.

The keywords words are likely to affect the pupil's understanding and engagement with James' profile. The terms may not be part of the prior knowledge.

Focus on unpicking these words carefully.

## 2. EXPLAIN

- **Say** – Tell the pupils to repeat the words carefully pronouncing all the syllables
- **Write** - Ask the pupils to write the words checking their spelling is correct
- **Definition** – Explain that Medicinal Chemistry it one part of Chemistry that includes designing, developing and creating pharmaceutical drugs. A part of this work includes evaluating the properties of existing drugs.
- **Ask** – Invite the pupils to give examples of using these words which will support them to clarify meanings and allow you to identify any misconceptions or misunderstandings

### 3. EXPLORE

Etymology is finding out about where the word comes from. In this part of the task, pupils explore the etymology of the keywords.

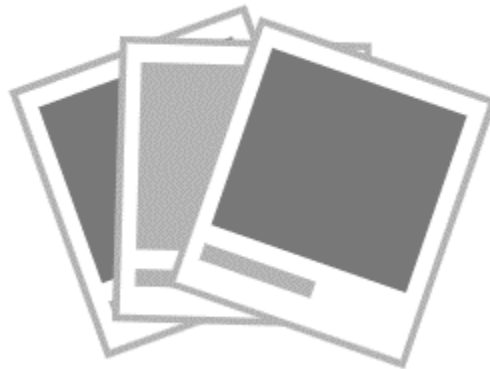
**Medicinal** is from the adverb *medicinally* – (*adjective*) relating to or having therapeutic properties e.g. this substance has medicinal properties and also (noun) a substance to relieve pain e.g. a medicinal substance

**Chemistry** originates from around 17<sup>th</sup> Century and comes from *chimist* meaning chemist and has 3 meanings (*all unaccountable nouns*)

1. a scientific study of the structure of substances and the way they react with other substances.
2. the chemistry of an organism or material is the chemical substances that make it up and the chemical reactions that go on inside it.
3. Where there is chemistry between two people, you mean they are attracted to each other or like each other very much

Explore further examples and questions from the pupils relating to the keywords.

**Images** could be shown or drawn that link with the word.



## 4. CONSOLIDATE

- **Test and learn** – revisit the keywords at regular intervals until you are sure there is a depth of understanding. Use some of the ideas already tried in other sections of the SEEC model as a quick quiz or reminder.
- **Research and record** – find out more about these words – what else can you find out about or is connected to the words medicinal chemistry.



Now watch the video again



[www.youtube.com/watch?v=7AFGQkNLz1U](https://www.youtube.com/watch?v=7AFGQkNLz1U)

- Ask the pupils to explain in their own words what James does. Ask them to explain what they understand about by the meaning of the keywords - **medicinal chemistry**?
- **Using the keyword in the world** – ask the pupils to use the words **medicinal chemistry** to produce questions for James.

Use the [Question Maker](#) to support this task.

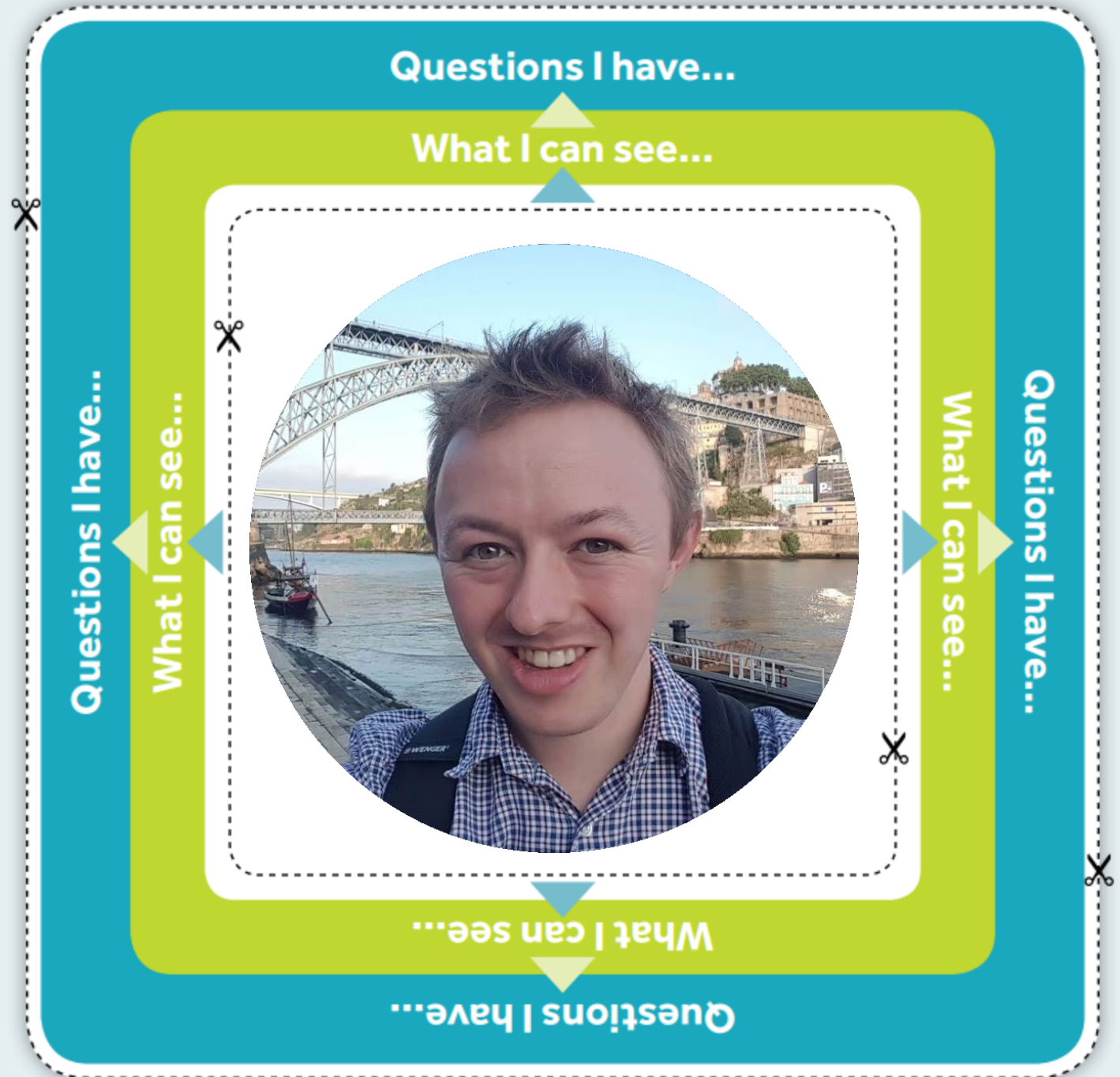
# Question Frame

## What you need?

A pair of scissors, a pencil, an object that you're curious about, sticky labels (optional).

## How does it work?

- 1 Make a frame out of an old cardboard box or use the printable. Be careful when cutting out the window in the centre.
- 2 Place the frame over an object or image, so that it appears in the window.
- 3 Observe what it looks like and describe what you can see.
- 4 Now, think about questions you have and jot them on a sticky note around the side of the frames.
- 5 Select the question(s) you wish to share.



## 5. COLLATE Questions for James

First name	Gender	Age	Question

Email at least 10 questions **together with** up to 10 photos of the pupil's work using the Question Maker to [fascinate@manchester.ac.uk](mailto:fascinate@manchester.ac.uk).

We will aim to get answers to as many as possible using a pre-recorded film with James or as a live Question & Answer session. You can also tweet James using [@jamesbeswick\\_](https://twitter.com/jamesbeswick_)