

Meet a STEM Professional - Active reading and listening tasks





MARIALUISA GENTILE

SENIOR SCIENTIST

@marialuigentile

KEYWORDS

manufacturing
materials

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 Marialuisa about her career journey to becoming a STEM professional.

ENGAGE



Ask the pupils read the profile in full.

Then read again together identifying any broad themes or comments

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

SEEC = select, explain, explore, consolidate

- Note Marialuisa, pronounced 'Maria Louisa'

ABOUT MARIALUISA - SUMMARY

- Marialuisa's job involves investigating the properties of the material *silicon carbide*. She tests it and uses the results to solve engineering problems and design new manufacturing processes.
- Marialuisa had always been curious and interested in the world around her. Using a microscope as a child stimulated a fascination in the structure of materials on a very small scale.
- Following a degree and masters in Chemical Engineering at University in Italy, Marialuisa then completed a PhD in materials science at the University of Manchester.
- After her studies, she worked as a manufacturing engineer working to make the production process better and loved seeing how engineering can make life better.
- Marialuisa loves playing volleyball and running with friends and also learning new languages.
- Marialuisa would love to work to discover a new composite material and manufacturing process that would improve the lives of people around the world

MANCHESTER
1824
The University of Manchester



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ABOUT MARIALUISA

HER JOURNEY INTO STEM
Marialuisa has always been curious and, as a child wanted, to learn about the world around her. Her STEM journey started when she saw a picture of a microscope in a chemistry book and was fascinated about the possibility of discovering the structure of materials at a very small scale. She studied a degree and Masters degree in Chemical Engineering in Italy, and after that, completed a PhD in Materials Science at the University of Manchester.

After her studies, Marialuisa joined a company as a manufacturing engineer, where she applied science to everyday problems to optimise product fabrication. In this role, she enjoyed seeing how engineering can improve objects that are used in everyday life.

HER JOB
Working as a senior scientist, Marialuisa investigates the properties of a material: silicon carbide. She tests the material, and uses the results to solve engineering problems and design a new manufacturing process. In this role, she enjoys writing about process development. At the University of Manchester, Marialuisa is also involved in teaching activities and to support student learning.

HER HOBBIES
In her spare time, Marialuisa enjoys playing volleyball and running with her friends. She also likes travelling to learn new languages.

THE QUESTION MARIALUISA WANTS TO ANSWER IS...
I would love to discover a new composite material and manufacturing process that can improve the lives of people around the world.

MARIALUISA'S QUESTION FOR YOU...
What scientists should discover to make a world a better place?

Keyword
manufacturing

ACTIVE LISTENING

Access the Collins CoBuild dictionary to help with pronunciation, definitions and synonyms. Visit www.collinsdictionary.com/

1. SELECT

Marialuisa describes her job as a senior scientist investigating the properties of materials and uses the results to solve problems and design a new **manufacturing** process

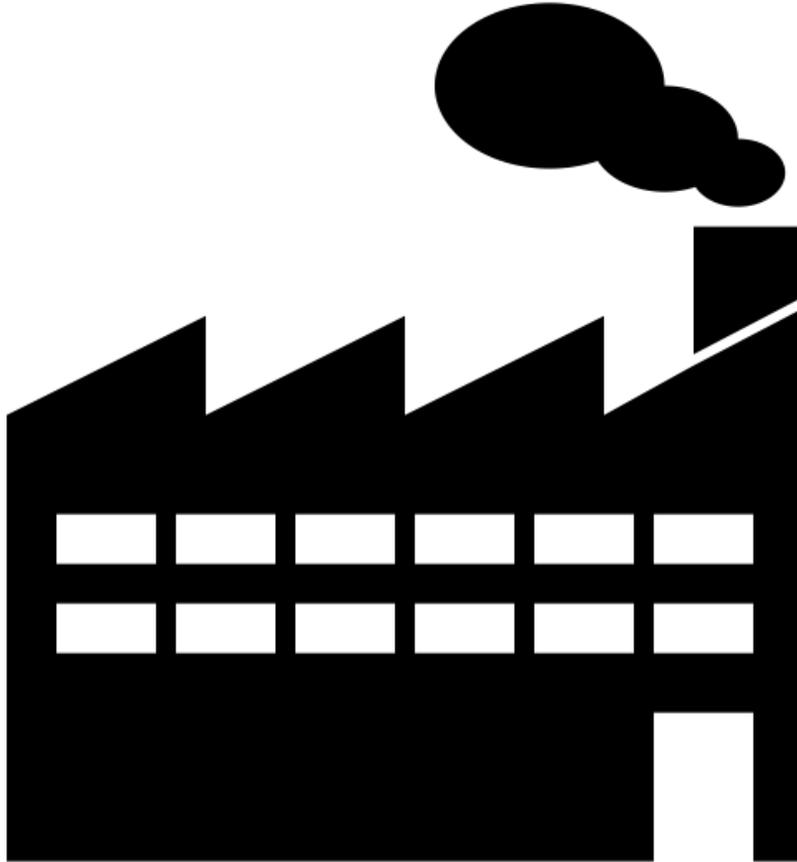
The keywords words are likely to affect the pupil's understanding and engagement with Marialuisa's profile. The terms may not be part of the prior knowledge.

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 manufacturing is the business of making things in factories. To process or make goods on a large scale using machinery
- **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

Manufacturing



Created by AA
from Noun Project

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.

Manufacturing (*noun*) meaning the process of making goods on a large scale, usually in a factory using machinery.

E.g. Our factory in Manchester is **manufacturing** the first four models of the new design

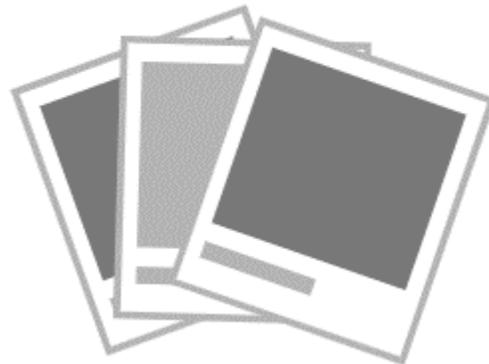
Synonyms for **manufacturing** include:

- Make
- Build
- Produce
- Construct
- Form
- Assemble
- Compose

From the root word **manufacture** (verb) to make something on a large scale

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 word manufacturing



- Read Marialuisa's profile once more
- Ask the pupils to explain in their own words what Marialuisa does. Ask them to explain what they understand about by the meaning of the keyword – **manufacturing**?
- **Using the keyword in the world** – ask the pupils to use the words **manufacturing** to produce questions for Marialuisa.

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 Marialuisa

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.

We will aim to get answers to as many as possible using a pre-recorded film with Anastasia or as a live Question & Answer session. You can also tweet Marialuisa @marialuigentile