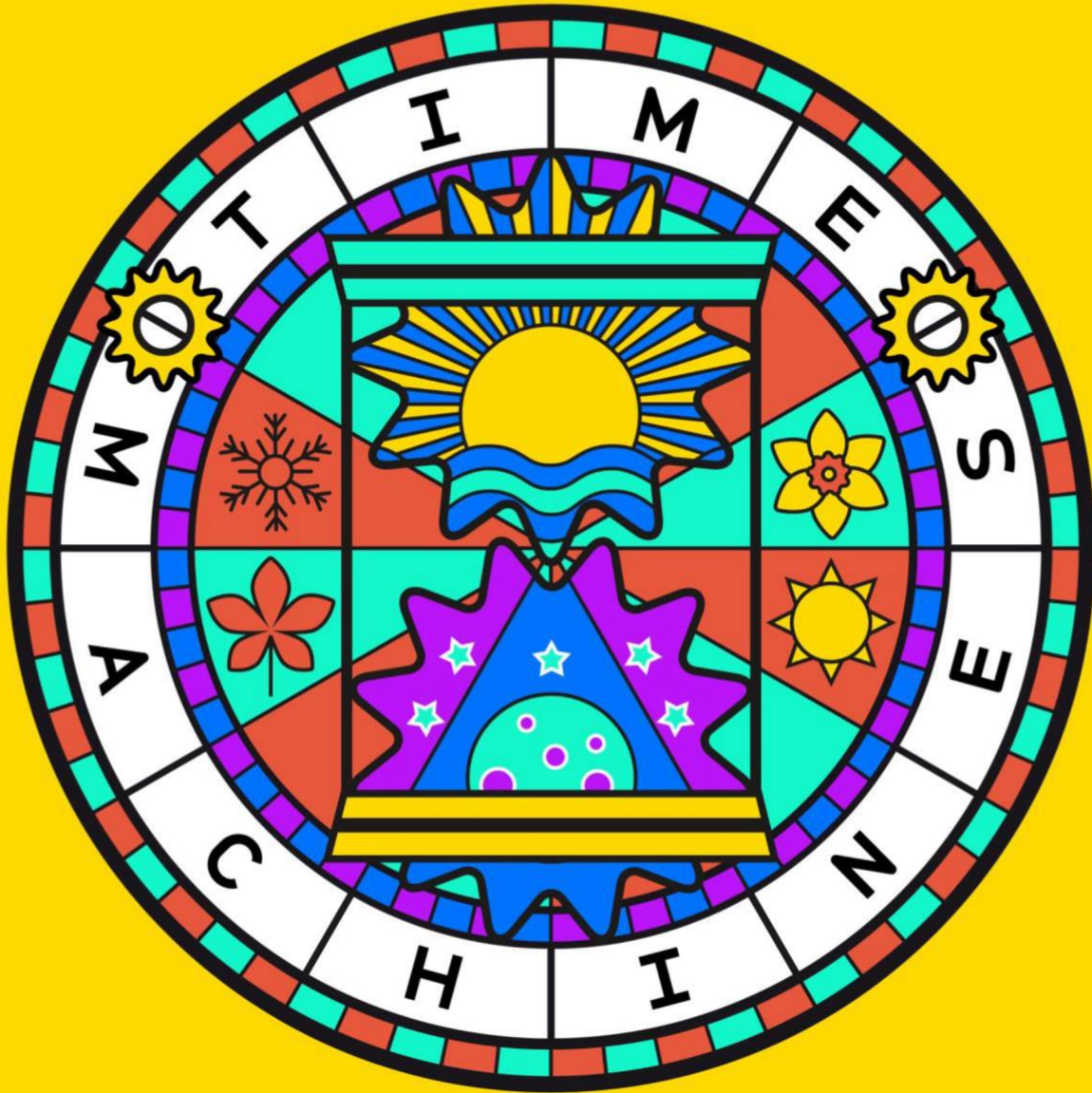




LESSON PLAN

www.primaryengineer.com

#EngineersInTheMaking



(Optional) Lesson 3: Watch Parts Micro Investigation

Learning Objective To investigate mechanical watch parts	Success Criteria Learners must: - Explore and investigate mechanical watch parts Learners should: - Ask questions - Give suggestions/opinions Learners could: - Use a Question Creation Chart to formulate questions
Key Vocabulary loupe micro-engineering scale technical drawing magnification magnify horologist horology Watch Parts: Return Bar Balance Cock Upper Centre Chaton & Movement Plaques Canon Drive Wheel	Resources Lesson PDF Scale drawings of mechanical watch parts x4 (PDF) Watch parts x4 Loupes x4 (x5, x10, x15, x20) Post-it Notes (two colours) Laptops/tablets Website: https://museum.seiko.co.jp/en/kids/know/type.html
Learning Experience (Guide Time: 45-60 mins) Introduce the learners to British Watchmakers/Watchmaking companies: Roger Smith, Christopher Ward and Mr. Jones (Slides 3 – 6). Short videos provide insights into some of the skills needed to be a horologist. There are question prompts on the slides to insight discussion. Slide 7 encourages learners to consider the cost of a watch. Click to reveal the cost of each watch and discuss. Learners will get the opportunity to see what it would be like to be a horologist as they'll be investigating real watch parts today. In small groups, ask learners to look at printed copies of the scale drawings of watch parts. Give learners the time to be curious and investigate. Provide them with Post-it Notes (of one colour) to add any questions they have about what they are looking at. Ask the learners to place these Post-it Notes around the page rather than cover the drawings. E.g. <i>What does this part do? What could the word 'Tolerances' mean? What do the letters stand for? Why does the page have grid references?</i> If learners need support/challenge with question creation, you could provide a Question Creation Chart (on Page 3 of this lesson plan). If learners have suggestions or answers to a question, they can add their thoughts/answers on a Post-it Note of a different colour next to the question. Read the message from Roger Smith OBE? and introduce the real watch parts. There are four mechanical watch parts included in your resources: Return Bar, Balance Cock, Upper Centre Chaton & Movement Plaques and a Canon Wheel Drive. Each part is in its own case. <i>What do you notice? Share ideas.</i> Learners will notice that the parts are very small! Working and building with tiny parts like this is called micro-engineering. <i>What could we do to get a better look at them? Share ideas.</i> Introduce the loupe – a small, powerful magnifying lens used for close-up viewing. Split the class into two halves (A and B). Each half to do both activities. A. Give learners the opportunity to use the loupes, of different magnifications (x5, x10, x15 and x20), to explore the mechanical watch parts alongside their accompanying scale drawings. <i>What can you see with the loupe that you can't without it? What happens when you use a larger magnification?</i> B. <i>What else can you find out about watches, their parts and how they work?</i> Using laptops/tablets, learners to investigate this website: https://museum.seiko.co.jp/en/kids/know/type.html Share something you learn with a partner!	
Plenary Use Slide 14 for learners to identify where the parts fit in a watch. Click to reveal each part. Give learners the opportunity to share what they've learned or discovered in today's session (from exploration of the watch parts and their accompanying drawings and investigation of the Seiko website). <i>Did we answer any of our questions that we asked at the start of the lesson? If we wanted to find out more about watch parts, who could we talk to?</i> Horologists!	





Question Creation Chart

		1	2	3	4	5	6
		is / are	do / does / did	can	would	will	might / could
A	What						
B	Who						
C	Where						
D	When						
E	How						
F	Why						

Examples

A3 What can... ?

E1 How is...?

F6 Why might...?

#EngineersInTheMaking

Copyright Universe of Engineering Ltd under license to Primary Engineer Ltd 2024-2026

