University of Reading

LEARNER NOTES

Additional Resource

WEEK 1: MEET THE MICROBES

	STEP NO.	STEP NAME	NOTES
WEEK 1 – Activity 1: Welcome to the course	1.1	Are microbes good, bad or harmless?	
	1.2	Welcome to the course	
	1.3	A note for teachers and students	
	1.4	A short survey from the University of Reading	
WEEK 1 – Activity 2: Types of microbes	1.5	The five major groups of microbes	
	1.6	Are viruses alive?	

	1.7	**Tree of life**	
	1.8	**3D model: microbes in action**	
	1.9	**How microbes came to rule the world**	
	1.10	**What do you remember?**	
WEEK 1 – Activity 3: How microbes function	**1.11**	**How do microbes grow and replicate?**	
	1.12	**The restaurant for microbes**	
	1.13	**Meet Professor Simon Andrews**	
WEEK 1 – Activity 4: Where microbes live	**1.14**	**Microbes at war**	
	1.15	**How do microbes survive?**	
	1.16	**Microbes living on the edge**	

	1.17	**Home practical: food decomposition**	
WEEK 1 – Activity 5: Microbe-host interactions	**1.18**	**Meet Professor Rob Jackson**	
	1.19	**The spectrum of microbe-host interactions**	
	1.20	**Where on the spectrum?**	
WEEK 1 – End of week: Review and reflect	**1.21**	**Meet Alice Collins - a microbiology student**	
	1.22	**An invitation to extend your learning**	

WEEK 2: STUDYING THE HIDDEN WORLD

WEEK 2 – Activity 1: Microbiology discoveries	**2.1**	**How do we know microbes exist?**	
	2.2	**Major discoveries in microbiology**	
	2.3	**Meet Dr Louise Johnson**	
WEEK 2 – Activity 2: Microbiology techniques	**2.4**	**How to study microbes that cause deadly diseases**	
	2.5	**How to isolate bacteria in a lab**	
	2.6	**3D model: Gram negative bacterial cell**	
	2.7	**How to isolate viruses in a lab**	
WEEK 2 – Activity 3: Interpreting results	**2.8**	**How to quantify microbes in a sample**	
	2.9	**Quantify the number of bacteria**	
	2.10	**Meet Professor Glenn Gibson**	

	2.11	**How to analyse a DNA sequence**	
	2.12	**Identify the species of soil bacteria**	
WEEK 2 – Activity 4: Your turn to analyse results	**2.13**	**Home practical: yeast fermentation**	
	2.14	**Home practical: share your results**	
WEEK 2 – End of week: Review and reflect	**2.15**	**Meet Matthew Shepherd - a microbiology graduate**	

WEEK 3: FOR BETTER OR WORSE

WEEK 3 – Activity 1: Medical microbiology	**3.1**	**A world without microbes?**	
	3.2	**Human pathogens: infectious diseases**	
	3.3	**Meet Dr Sheila MacIntrye**	
	3.4	**How to identify the culprit of an infection**	
	3.5	**Match the microbe to the disease symptom**	
WEEK 3 – Activity 2: Treatment and prevention	**3.6**	**How do antibiotics work?**	
	3.7	**Meet Dr Simon Clarke**	
	3.8	**Prevention is better than cure**	

WEEK 3 – Activity 3: Food microbiology	**3.9**	**How to avoid food poisoning**	
	3.10	**Meet Dr Gemma Walton**	
	3.11	**Home practical: making yoghurt**	
WEEK 3 – Activity 4: Environmental microbiology	**3.12**	**How microbes affect global processes**	
	3.13	**Meet Dr Renee Lee**	
WEEK 3 – Activity 5: Microbes and biotechnology	**3.14**	**Beneficial uses of microbes**	
	3.15	**Where should we invest?**	

WEEK 3 – End of week: Review and reflect	**3.16**	**What skills are needed to be an microbiologist?**	
	3.17	**Meet Spencer Long- a microbiology graduate**	
	3.18	**What next?**	