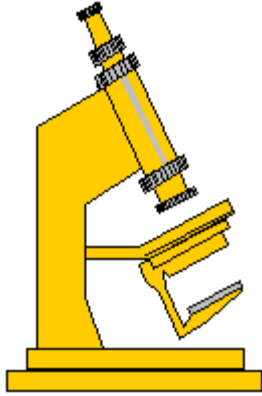
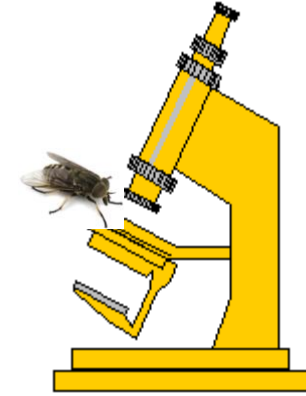


A first adventure with ...



# Microscopes



**Poynton Beavers**

November 2023

Mike Mahon

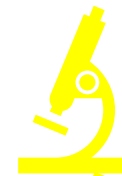
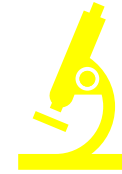
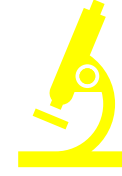
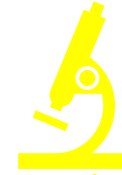
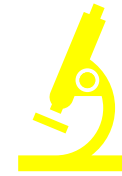
*Manchester Microscopical Society*

**1880**

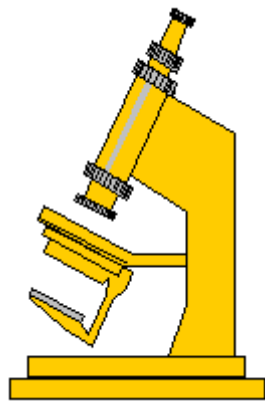


# Beavers are young people who:

- Master new skills and try new things
- Have fun and go on adventures
- Make friends
- Are curious about the world around them
- Help others and make a difference
- **+ Gain Science Badges**



# Questions ?????



• Why do you need a microscope ? **Eye .**

• What does a microscope do ?

**Magnify**



• What are the types of microscopes ?

**Simple Stereo Compound**

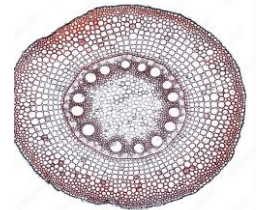
• What can I look at with a microscope ?

**Solid Objects**



**Thin Sections**

• Can I take a picture or video or make a drawing ? **Yes !**



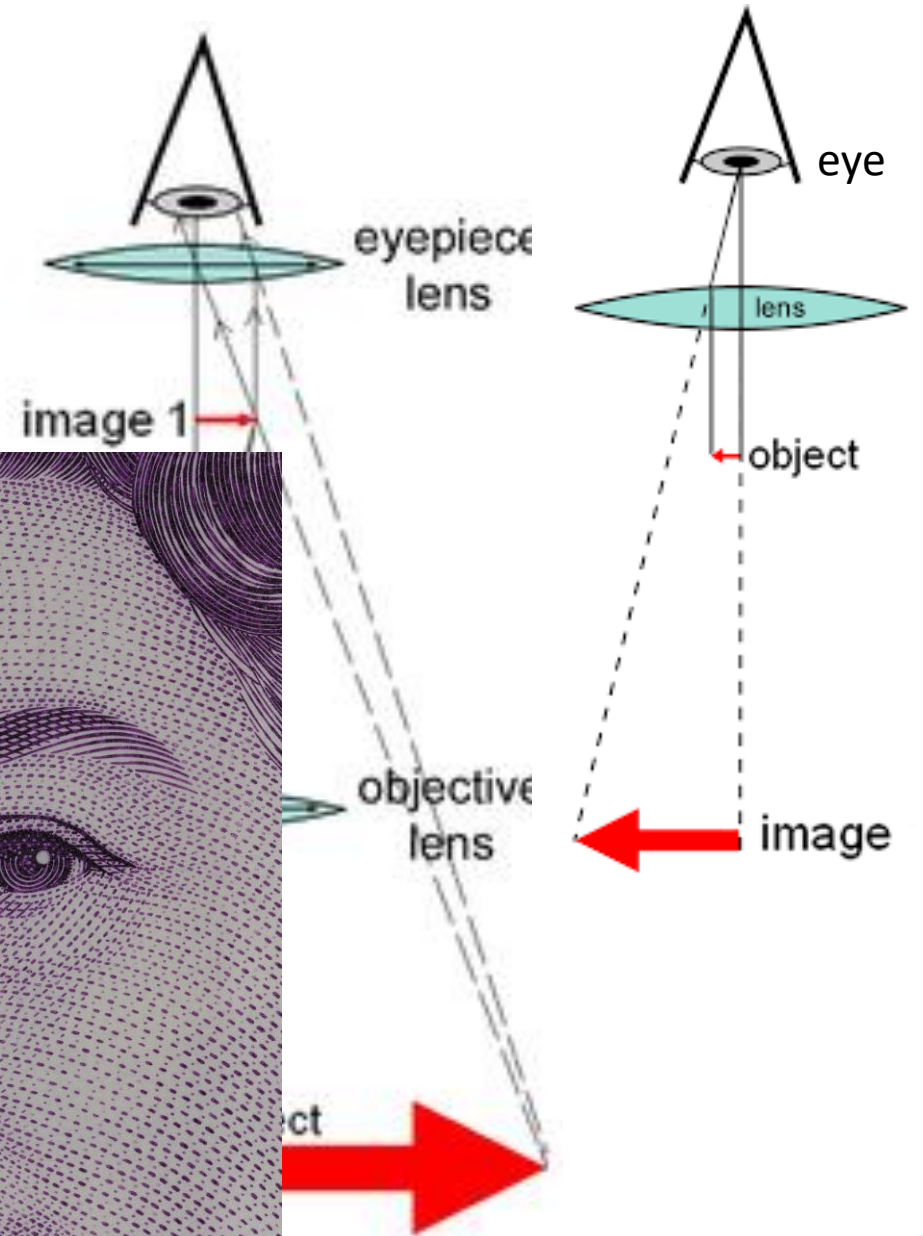
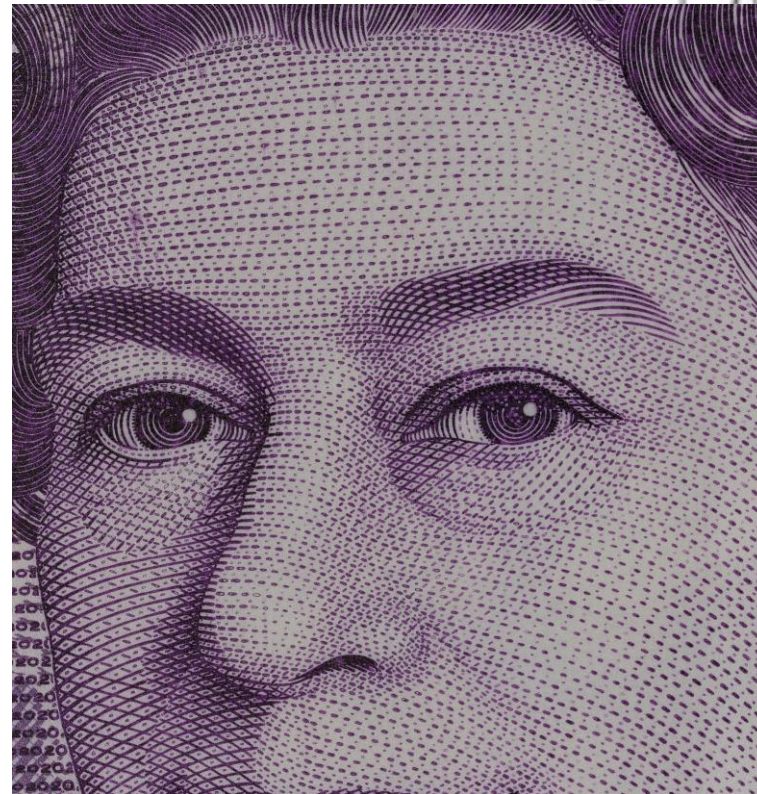
• Who uses Microscopes ?

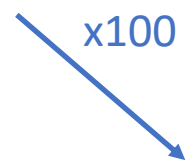
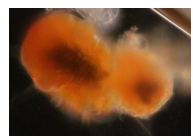
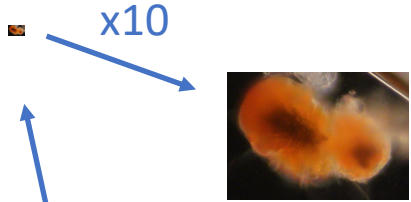
**Scientists Doctors Forensics Jewellers IT ..... You !**



# Magnification

- 0.1mm
- 1mm
- X 4
- X 10
- X 40
- X 100
- X 1000 !



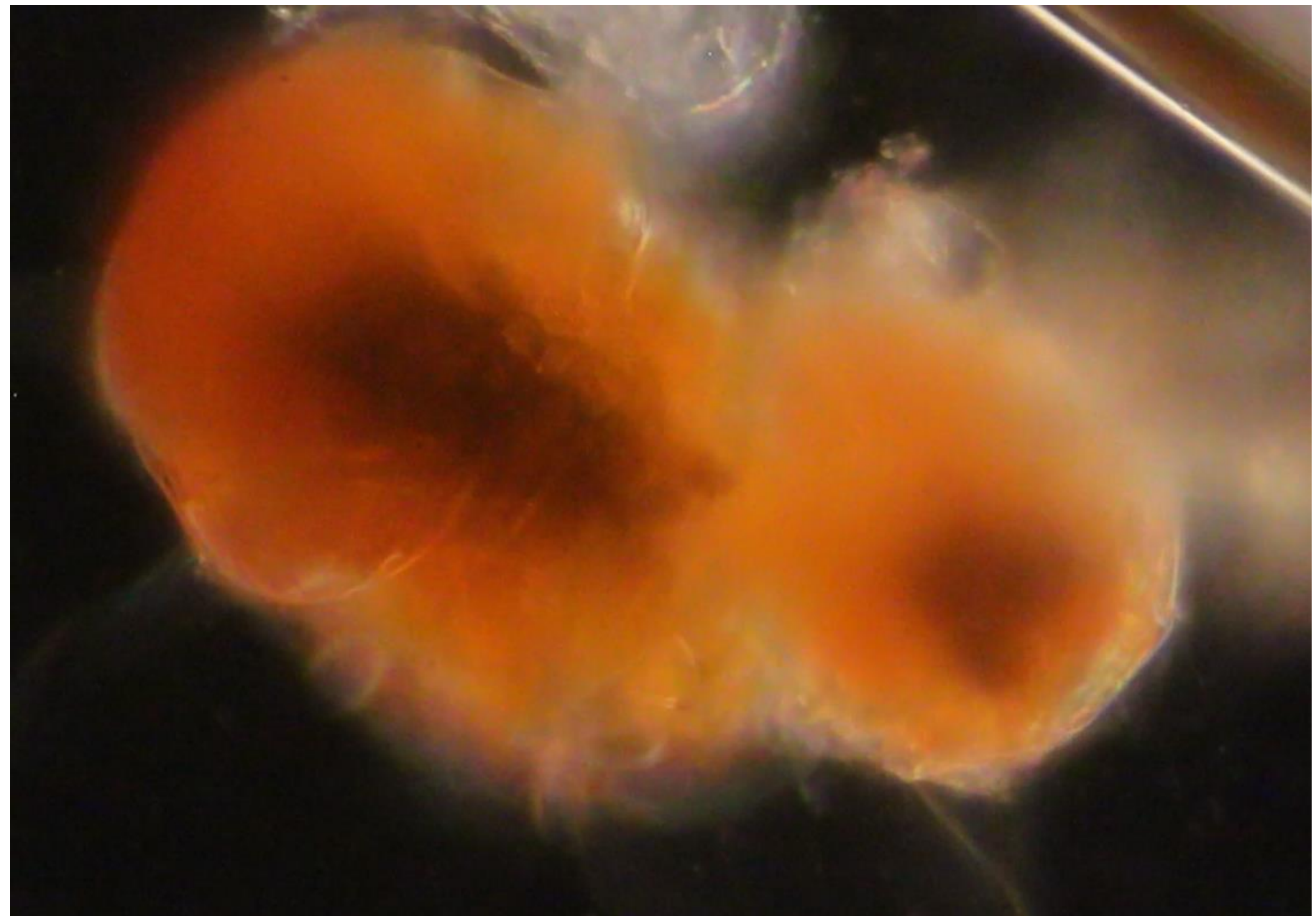


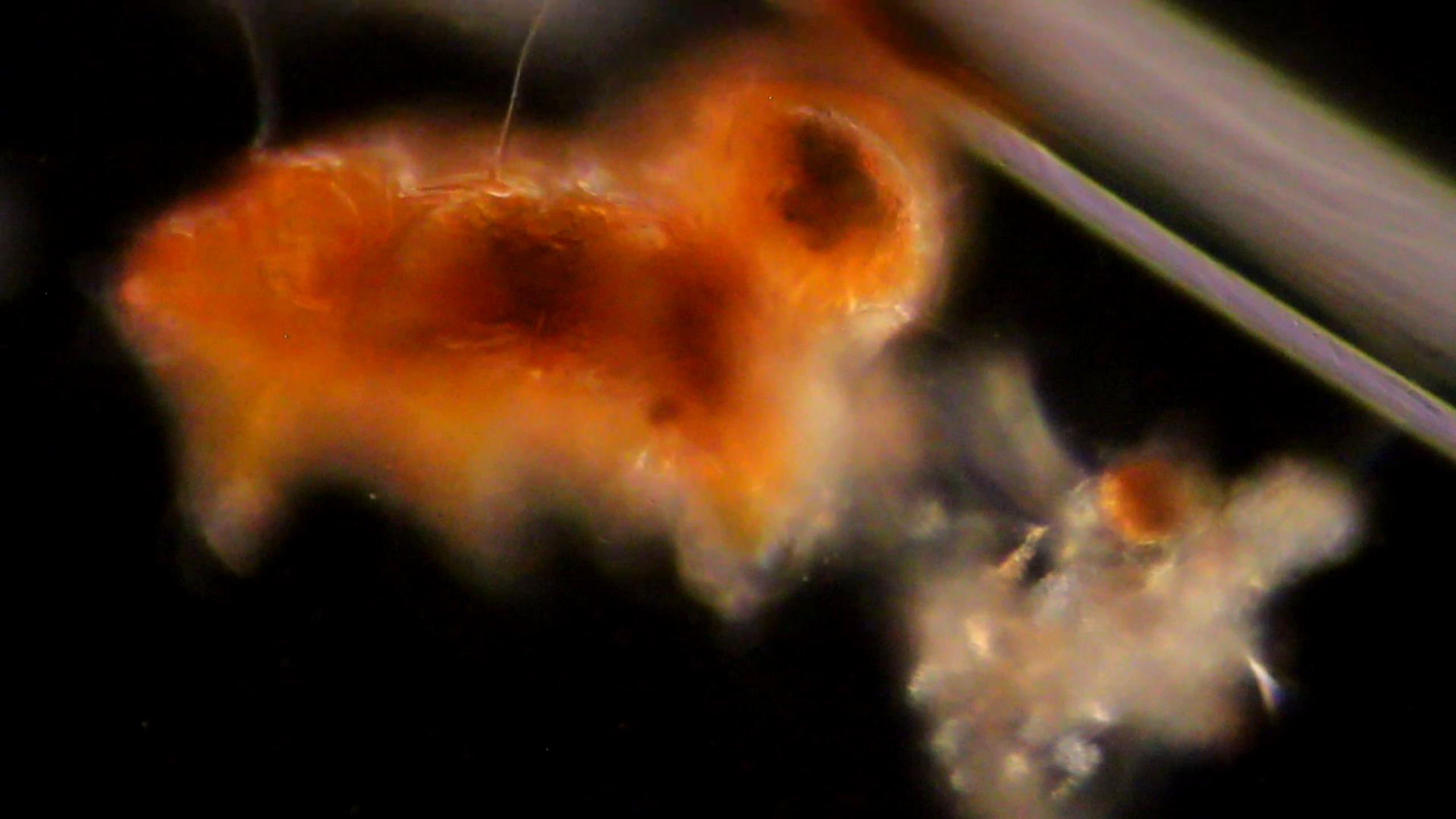
Moss

# Water Bear

(Tardigrade)

5 inside a full stop !!







Magnifying Glass  
Ancients -now



Simple Microscope  
1650



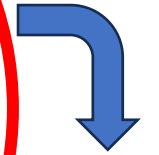
Brass Compound  
Microscope  
1850



Black Compound  
Microscope  
1950



Plug-In Compound  
Microscope  
1970



# Microscopes



Inspection & Stereo microscopes



Diamond Light Source  
2023



Research  
Microscope  
2000

# Parts of the Microscope

**Objective Lenses**  
Three or four lenses with a range of different magnifications

**Eyepiece Lens**  
Part of the microscope through which you look

**Stage**  
A platform that holds the slide for observation

**Arm**  
Supports and connects the eyepiece lens to the base; also a handle for carrying

**Slide**  
A thin piece of glass that holds the specimen

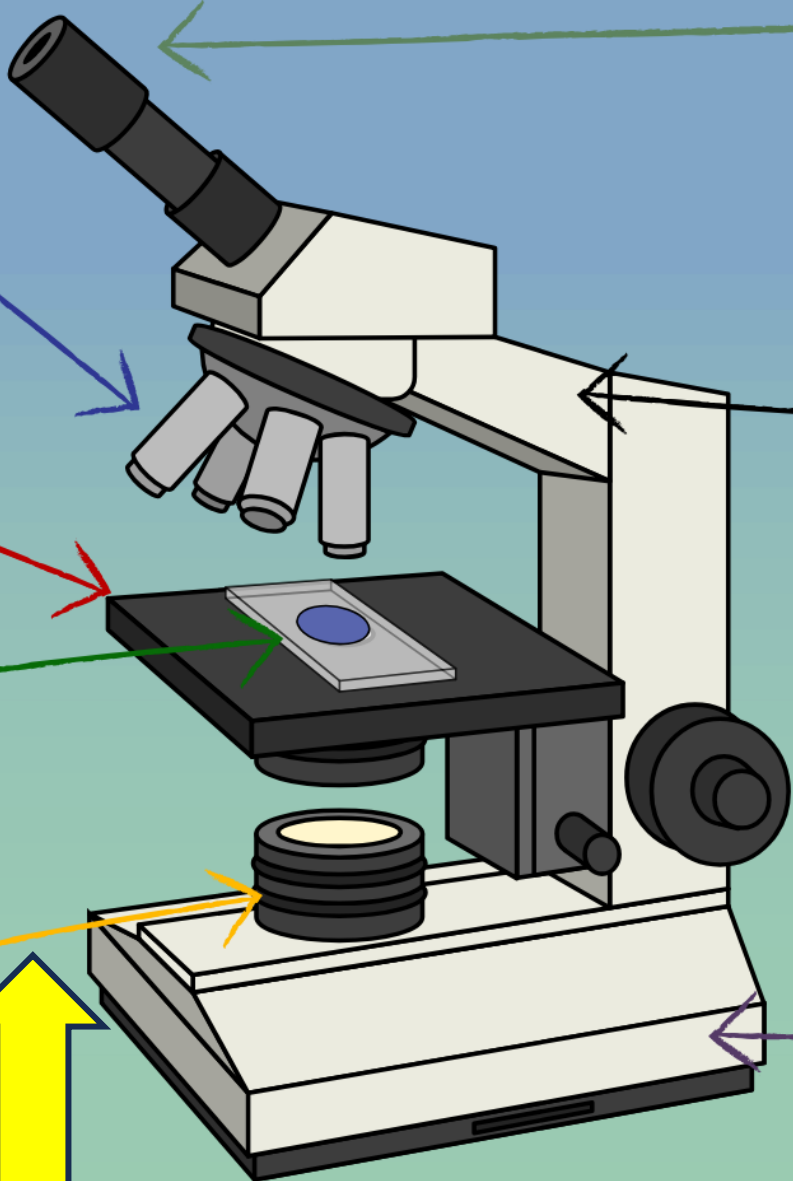
**Focus Wheel**  
Used to bring the object in and out of focus

**Lamp**  
Provides light to illuminate the specimen, sometimes used with a mirror

**Base**  
Supports the microscope



Direction of Light

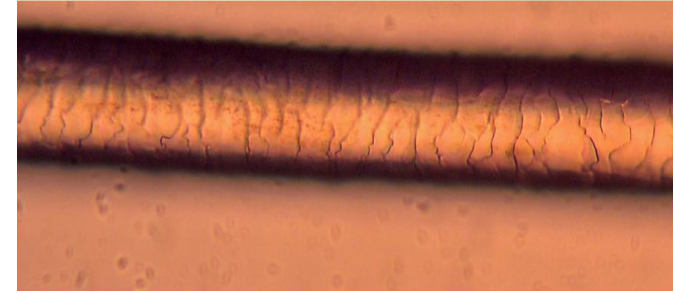
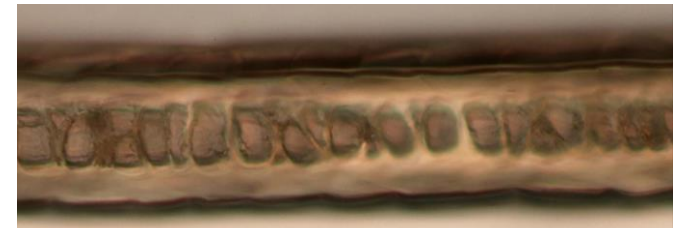
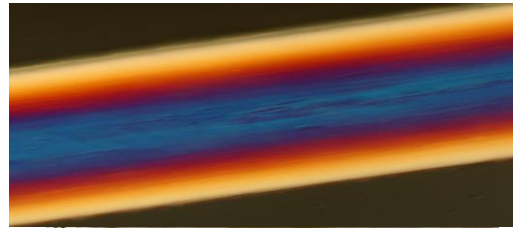




# Things to look at ...

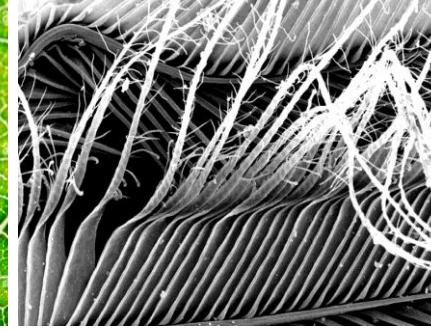
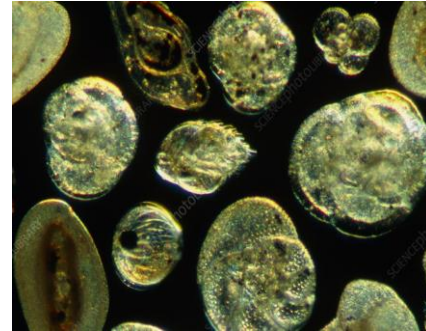
- **Yourself**

- Skin / Fingerprints
- Hair
- Blood



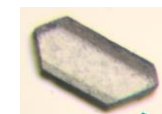
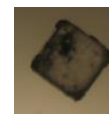
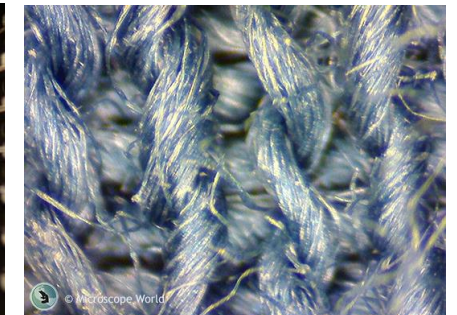
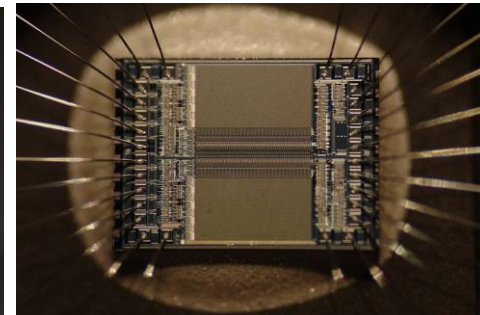
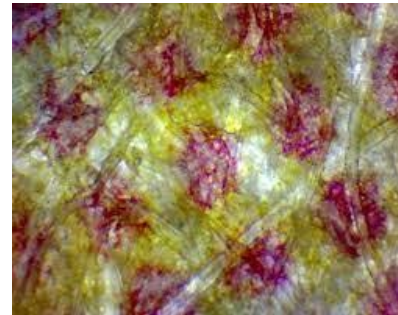
- **Outdoor items**

- Soil / Sand
- Plants / Moss / Lichen
- Feathers
- Pond Life
- Insects



- **Indoor items**

- Printed pictures
- Coins
- Computer chips
- Cellotape / Cloth / Salt / Sugar / ...



# Practical Activity

3 Groups ... A B C

Time .....

- Intro

- Collect specimens to view and enlarge

- View Video demo

- View Microscopes demo

- View own material

- Quiz !

	6.00	6.10	6.20	6.30	6.40-7.00
	ABC ✓				
Collect specimens to view and enlarge		A	C	B	
View Video demo		B	A	C	
View Microscopes demo		C	B	A	
View own material					ABC

# Microscope Quiz

Name .....

1. What is the smallest size/thing you can see with your eyes alone?

.....

2. What do microscopes do?

.....

3. What did you collect to look at with microscopes?

.....

4. What did it look like? Can you draw it here?

5. What did you like most about the microscope evening?

.....

**End**

# Microscope Quiz

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1. What is the smallest size/thing you can see with your eyes alone?

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