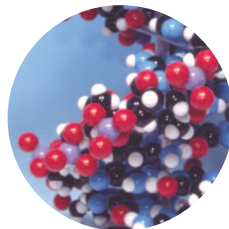


TeachAssist Resource Worksheets

Series 1 of 16



"How to use a microscope and prepare an onion epidermis slide"



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TeachAssist Resources

TeachAssist resources are written with the practical needs of science teachers in mind. Each resource covers a practical activity that is integral to the QCA schemes of work to provide quick and easy preparation for practical classes.

Please feel free to photocopy the sheets to suit your needs.

Each TeachAssist resource contains:

- Student worksheet with practical instructions and activities.
- Technicians' equipment list for a class of 30 students.
- Reference to allow trouble-free ordering of materials and resources.

A summary table links each resource to the National Curriculum programme of study which allows TeachAssist practical activities to be quickly included into lesson plans and schemes of work.

If you require other booklets in the series, please telephone the Griffin Education Sales team or send your request to the following address:-

Griffin Education
Bishop Meadow Road
Loughborough
Leicestershire LE11 5RG

STUDENT WORKSHEET



Important information:

Follow all the safety instructions that your teacher gives you.
Careful: scalpels, knives, glass slides and cover slips have sharp edges.
Wear safety glasses when handling iodine solution. Quickly wash off any that gets onto your skin. It will stain yellow-brown.

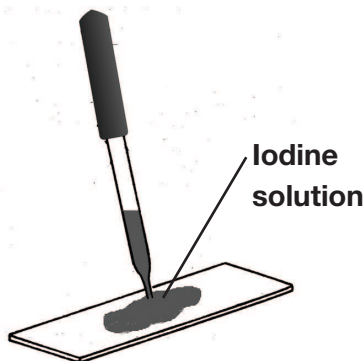
Looking at onion skin cells

1. Use the white tile as a cutting board. Carefully cut a piece of onion "leaf" about 2cm x 2cm square.

2. Use the tweezers to peel the outside (shiny) skin off the leaf. It is really thin and easy to break. If it folds over or sticks together, try with a fresh piece of onion.



Onion "leaf"



1. Use the dropper to put two drops of iodine solution onto the middle of the glass microscope slide.

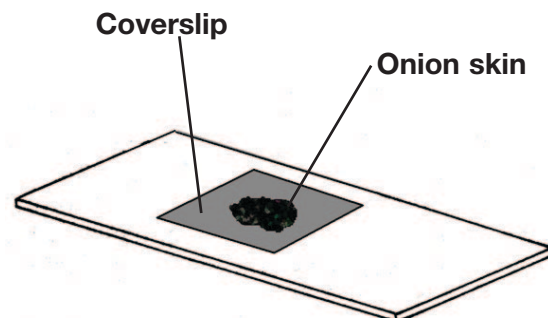
Take care not to get the iodine solution onto your skin. It will stain it yellow-brown.

2. Place the piece of onion skin onto the iodine solution. Keep it as flat as possible and avoid getting it creased..

1. Use the tweezers to carefully place a small cover slip over the onion skin.

2. With a paper towel, carefully soak up any excess iodine solution on the slide.

3. Place the slide onto the microscope stage and view the cells. Start with the lowest magnification and work up to the highest magnification.



STUDENT WORKSHEET

Using a microscope

Eyepiece

Look through the eyepiece to see the image.

Check the number on the side to see its magnifying power. X10 = ten times magnification.

Lenses

Turn a lens until it clicks into place.

The magnification is shown on the side (usually X4, X10 and X20).

Stage

Use the clips to hold down the glass slide. Make sure that the cover slip is facing upwards.

Focus

Turn the wheel to bring the slide into focus.

Mirror

Angle the mirror to bounce light through the glass slide on the stage.

Some microscopes will have a built-in bulb to produce the light.



Magnification

$$\text{Total magnification} = \text{Eyepiece magnification} \times \text{Lens magnification}$$

Setting up the microscope

1. Place a glass slide onto the stage.
2. Turn the lenses so that the one with the smallest magnification clicks into place over the slide.
3. Adjust the mirror so that light passes through the glass slide and into the lens.
4. Look at the slide from the side of the stage. Use the focus knob to move the lens down so that it is just above the slide. Take care not to hit the slide with the lens.
5. Look down the eyepiece and turn the focus so that the lens moves away from the slide until the slide looks like it is in focus.
6. Change the magnification by turning the lens until it clicks into place. Do not change the focus as it should be nearly in focus. Look down the lens and make any fine adjustments with the focus wheel.


TECHNICIAN'S EQUIPMENT LIST

QCA Unit 7A: Cells

Date:	Room	Time/Period:
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Equipment Class of 30 pupils, working in pairs.	Quantity	Check	Out	Back
Microscopes	15			
Glass slides	40			
Glass cover slips	40			
Iodine solution (in 100ml bottles)	15			
Dropping pipettes	15			
White tiles	15			
Scalpels	15			
Tweezers	15			
Onions	5			
Cutting board and knife	5			
500ml beaker / container with soapy water (for used slides)	4			
Video: The living cell	1			
TV and video player	1			

Important information:



The activity contains reagents and procedures that can be hazardous. It should not be performed unless an appropriate risk assessment has been made.

Iodine solution is classed as harmful and should be handled accordingly. Care must be taken with sharp edges on slides, coverslips, scalpels and knives.

ORDER REQUISITION

Equipment	Griffin Catalogue No.	Page	Unit cost (£)	No. Required	Cost (£)
Microscope Junior Model 2	YSF-600-D	455	72.40		
Glass slides (76x26mm, 1 – 1.2 mm thick) pack of 50	YSH-102-L	381	2.60		
Glass cover slips (100 per box)	MNJ-450-010C	460	2.85		
Microscope slide dispenser (60, 76 x 26mm size slides)	MNK-120-R	461	28.55		
Iodine solution (1% w/v in potassium iodide, 2.5ltr)	J/4450/17	161	20.18		
Amber Glass dropping bottle, 100ml, 16/16 stopper size	BTR-505-070N	367	7.40		
White ceramic tiles (150 x 150 mm, pack of 5)	PRC-300-050A	543	6.65		
Disposable Scalpels (blade-fitted, plastic handle, pack of 10)	SCA-310-030k	399	3.30		
Tweezers, plastic, (pack of 10)	DKC-301-A	398	3.50		
Cutting / dissection board (300 x 462mm, wood)	YSJ-300-030B	398	11.00		
Safety glasses	FB55125	492	2.25		
500ml beaker, plastic, (pack of 10)	FB50309	363	15.00		
Beginner's microscope slide set (12 slides) (see catalogue for other slides)	ZKY-400-U	275	19.10		
Video: The living cell (biology 14+ series)	ZVD-110-060Q	230	45.90		
				Total cost	
				VAT	
				Order total	

Complete the order form above and place your order with Griffin Education in your usual way. Prices are correct at time of print, please contact the Griffin Sales Office or check on the Griffin Education website for the latest prices.

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