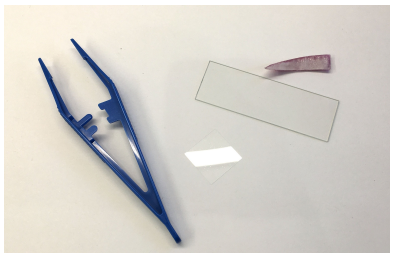
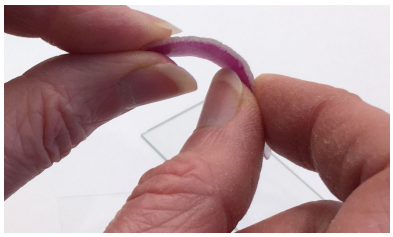
Procedure to Investigate Structures in Red Onion Cells

Procedure for preparing your onion skin slide

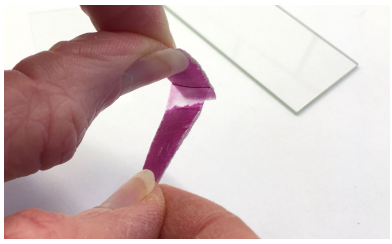
1. Get a slide, a cover slip, a piece of red onion, and tweezers (or a toothpick) from your teacher.



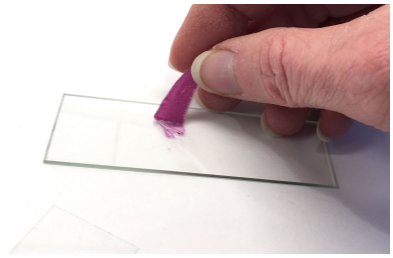
2. Gently bend the piece of onion against the curve until it snaps.



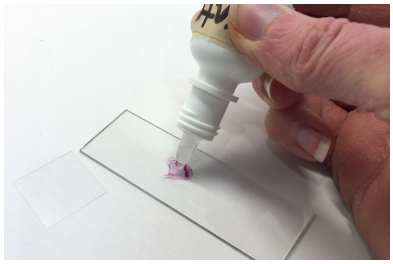
3. Carefully peel off a thin layer of the onion's outer purple skin (called the epidermis). The skin tissue will look like pink cellophane. You can use your fingers, tweezers, or a toothpick to help peel the skin off. Try not to wrinkle or fold the skin, stretching it as flat as possible.



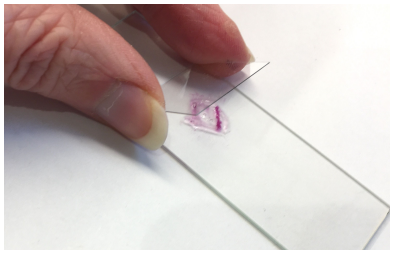
4. Lay the onion skin tissue across the slide as you are pulling it away from the onion flesh. Use your tweezers, toothpick, and/or fingers to spread the skin as smoothly as possible on the slide so it's not folded or wrinkled. You will likely have some wrinkles, but you want at least some area that is smooth (that's where you will want to focus with the microscope).



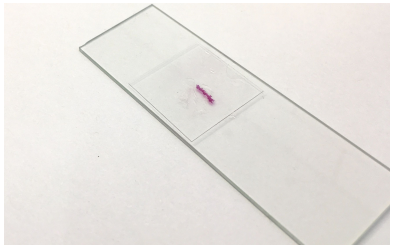
5. Add one drop of water on top of the onion skin tissue.



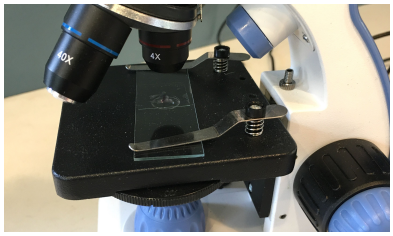
6. Rest one edge of the coverslip on the slide next to the onion skin tissue. From there, let the coverslip fall gently over the water and the onion skin tissue.



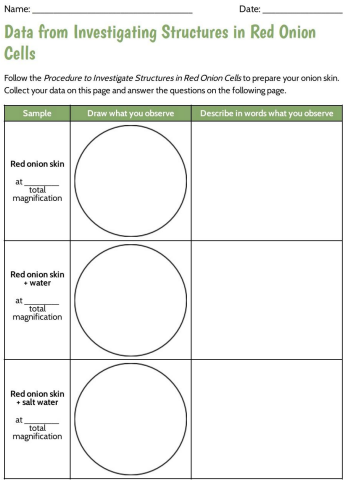
7. Check to make sure there are no air bubbles under the coverslip. You want a tight seal with as few air bubbles as possible. If you see bubbles, try one more time: carefully slide or lift off the coverslip, smooth the onion skin again, add a drop of water, and gently drop the coverslip again. If you still see some bubbles this time, that's OK.



8. Place the sample on the microscope and observe it under the lowest power (40x). Use the coarse focus to find the structures and the fine focus to make them clearer. Begin with a low light and adjust as needed. Try to find a smooth area of the skin tissue so you're looking at just a single layer rather than a wrinkle or fold. Change to a higher objective (such as 100x) and adjust your focus again.



9. Record your observations in the first row of the data table on *Data from Investigating Structures in Red Onion Cells*.



Name: _____ Date: _____

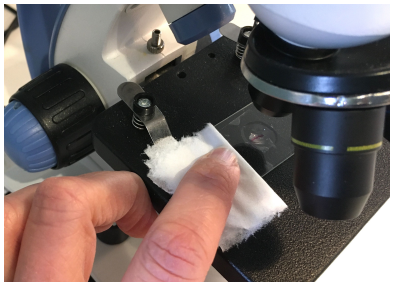
Data from Investigating Structures in Red Onion Cells

Follow the *Procedure to Investigate Structures in Red Onion Cells* to prepare your onion skin. Collect your data on this page and answer the questions on the following page.

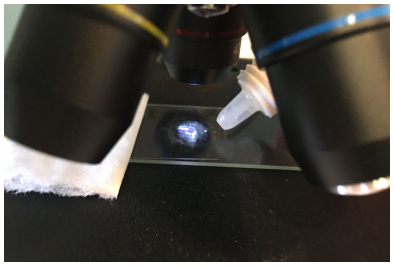
Sample	Draw what you observe	Describe in words what you observe
Red onion skin at _____ total magnification		
Red onion skin + water at _____ total magnification		
Red onion skin + salt water at _____ total magnification		

Procedure for investigating the onion skin

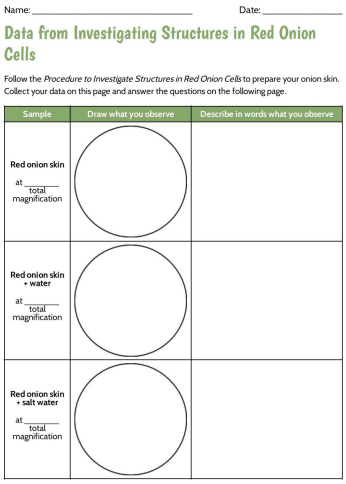
10. Place one small piece of paper towel near one edge of the coverslip to soak up excess water.



11. On the other edge of the coverslip add a single drop of water. The small piece of paper towel on the opposite edge will draw the water across the slide under the coverslip.



12. Observe what happens to the structures of the cells. Wait a minute to see if anything changes. Make observations and record them on *Data from Investigating Structures in Red Onion Cells*.



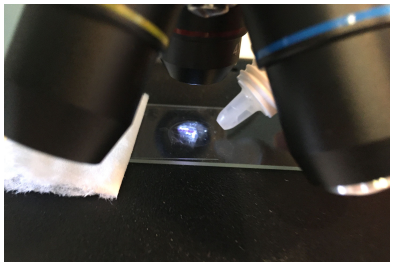
Name: _____ Date: _____

Data from Investigating Structures in Red Onion Cells

Follow the *Procedure to Investigate Structures in Red Onion Cells* to prepare your onion skin. Collect your data on this page and answer the questions on the following page.

Sample	Draw what you observe	Describe in words what you observe
Red onion skin at _____ total magnification		
Red onion skin + water at _____ total magnification		
Red onion skin + salt water at _____ total magnification		

13. Replace the first piece of paper towel with a new piece on the edge of the coverslip. On the opposite edge of the coverslip, add a drop of salt water.



14. Observe what happens to the structures of the cells. Wait a minute or two to see if anything changes. Continue to make observations, record them, and answer the questions on *Data from Investigating Structures in Red Onion Cells*.

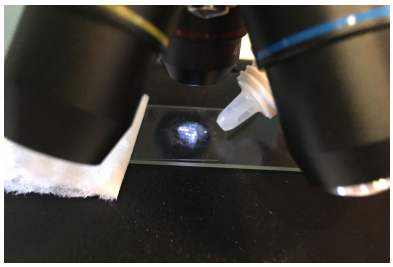
Name: _____ Date: _____

Data from Investigating Structures in Red Onion Cells

Follow the *Procedure to Investigate Structures in Red Onion Cells* to prepare your onion skin. Collect your data on this page and answer the questions on the following page.

Sample	Draw what you observe	Describe in words what you observe
Red onion skin at _____ total magnification		
Red onion skin + water at _____ total magnification		
Red onion skin + salt water at _____ total magnification		

15. After you've predicted what will happen on *Data from Investigating Structures in Red Onion Cells*, place another new piece of paper towel on the edge of the coverslip. On the opposite edge of the coverslip, add 1-2 drops of water.



16. Observe what happens to the structures of the cells. Wait a minute or two to see if anything changes. Continue to make observations, record them, and answer the questions on *Data from Investigating Structures in Red Onion Cells*.

Follow the *Procedure to Investigate Structures in Red Onion Cells* for steps 15 and 16. Collect your data and answer the questions on this page.

Sample	Draw what you observe	Describe in words what you observe
Red onion skin + water again at _____ total magnification		

3. What did you notice about the structures in the cells when you added water again?

4. What do you think is happening to cause the changes you've observed in these cells?

5. What do you notice about the cells of this plant compared to the cells of animals we've already seen? How are their structures the same and how are they different?