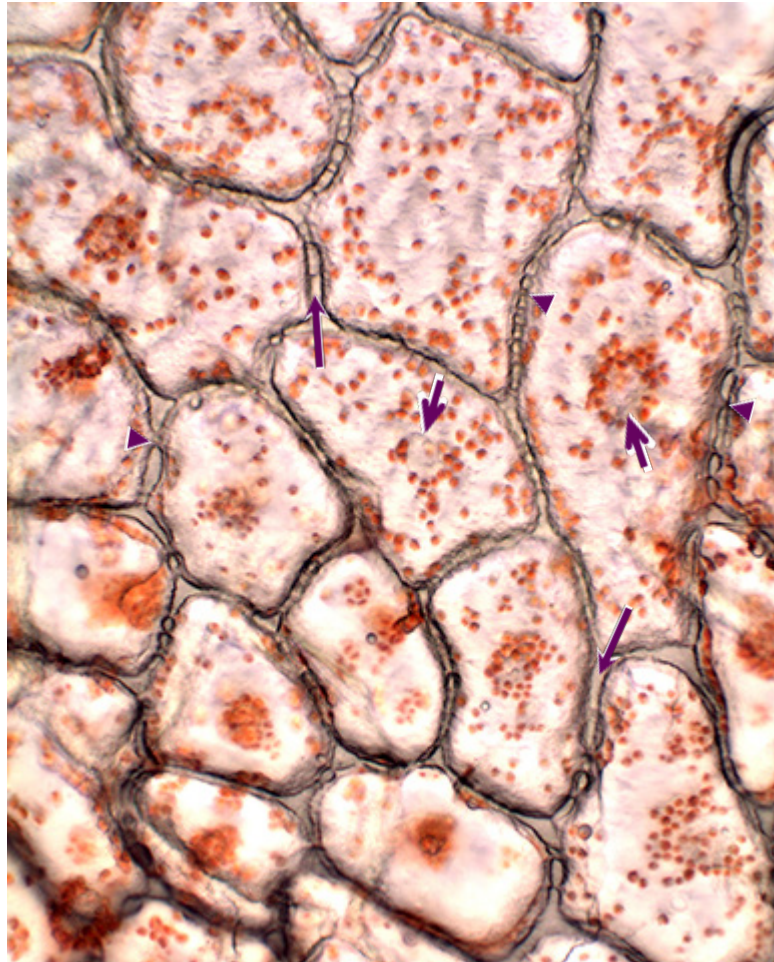


## PST-cell-3: Red Pepper cell Visual Microscopy Kit



This poster is a wet mount of red pepper peel at 400X. Many red pepper cells are unstained and coverslipped in water. Specific items are indicated by each of the following arrows on this image:

- Indicates the thick cell walls around each cell
- ▶ Indicates plasmodesmata (connections between cells)
- Indicates nuclei

The red pepper appears red because these cells contain red-colored plastids called chromoplasts. Red pepper cells contain chromoplasts instead of chloroplasts; these organelles function to provide the red pigment and are visible as small red dots inside every cell. Sometimes the chromoplasts cluster around nuclei and enable the unstained nuclei to be more visible. The peel of a red pepper is crunchy, due to the presence of thick cell walls around each cell. Plant cells have cell junctions called plasmodesmata—they are visible here as they navigate across the thick cell walls.

## For all Cell Zone<sup>®</sup>, Inc. posters

### General Instructions:

- Move from room to room or maintain in one location
- Hang on any permanent or removable hook by the grommet
- Use a dry erase marker on the frame; erase the same day to ensure clarity
- Store multiple posters by stacking so that the grommet cannot scratch the front of a neighboring poster

### Advantages with using posters:

- Hanging real cell micrographs makes your classroom or lab space look like a place where real science is done
- The posters can be hung as art or for learning
- The posters can be paired with microscopy or used separately
- You will always have a good example of what you want your students to see

### Lessons for this specific poster

1. In combination with the Dynamic Cell Models from Cell Zone<sup>®</sup>, Inc., any student or group of students can choose one cell from within this poster to model. Once they have assembled their red pepper cell model, they can then describe/defend their model to their classmates or to you.
2. Lessons when pairing the use of this poster with microscopy:
  - Put the microscope pointer on something within the microscope field and ask them to find something similar on the poster and identify it with their classmates.
  - Indicate an item on the poster by pointing or drawing on the frame with a dry erase marker and have your students find a similar thing in their microscope field; each student can do this or groups of students can do this and you can check.
  - Sometimes students will get more of the red pepper meat on their slides than the red pepper peel. If they do, have them evaluate which has thicker cell walls and explain why that is (the peel has the crunch when eaten, not the inner meat).
3. Hand your students a dry erase marker and have them identify every part of a red pepper cell that they can see clearly in the photomicrograph by writing on the poster frame. Either leave it open ended (thus giving them an option to identify things that they cannot see like the ER or ribosomes) or give them a specific list.
4. Ask your students if these plant cells carry out photosynthesis (they do not). See if they can figure out that chloroplasts are needed for photosynthesis and that these cells lack chloroplasts. Finally, ask them why chromoplasts are needed in these cells (to give them pigment and make them attractive to animals to spread their seeds).
5. Have your students compare this image to the standardized drawing or model of a typical plant cell. Ask them if they look the same. Have them identify all the things that they can see in both and figure out why they cannot see so many of the items indicated in the drawing or model; the reason is that those other items are too small for light microscopy to resolve.

