

## Investigation 8.C: Identifying Blood Cells Answer Key

### Answers to Analysis Questions

1. Red blood cells do not have a nucleus because they must be pliable and able to fold so that they can enter the tiny blood vessels and capillaries that extend to the far reaches of the body. Also, they have to fit through the tiny slits in the spleen which helps to filter the blood.

or

The presence of a nucleus would change the biconcave shape of the red blood cell. The biconcave shape increases their flexibility for moving through capillary beds and increases their surface area for the diffusion of gases.

2. It is unlikely that you will see platelets using a medium-power objective lens. These cell fragments are only 2 to 4  $\mu\text{m}$  in diameter.

### Answers to Conclusion Questions

3. White blood cells are stained purple, you can see their nucleus, and they are larger than red blood cells.
4.
  - a) There should be hundreds of red blood cells and only 1 to 4 white blood cells in their field of view.
  - b) You should indicate that there are many more red blood cells. However, you do not know the volume of blood in your field of view, which makes it impossible to come up with the answer of 4 million to 6 million red blood cells per  $\text{mm}^3$  blood.

Blood cell counts can be performed using the hemacytometer. This is a precision instrument that possesses a platform with microscopic grid scoring, above which a specified quantity of fluid is held. By diluting blood properly, counting all cells in specified squares, and multiplying by the proper conversion factor, the number of cells per cubic millimetre can be determined.