**The Incredible Egg**

The egg is the largest living cell. Because of this, it is a great tool for demonstrating the process of diffusion and osmosis…two examples of the life process, transport. Keep in mind while participating in this demonstration that cell membranes are selectively permeable. **Selective permeability** is a property that allows some materials to pass through while keeping others out. The reason cells would allow materials to enter and leave is to try and maintain a “balance” inside the cell. This internal balance is known as **homeostasis** and is achieved by a variety of different transport methods. If we place one egg in distilled water and another egg in syrup, what role do you think this property will play in letting materials in and out?

**Prediction**

Will an egg without its shell, gain or lose mass when placed in a container of distilled water?

If an egg without a shell is placed in a container of distilled water, then it will

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mass because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Will an egg without its shell, gain or lose mass when placed in a container of syrup?

If an egg without a shell is placed in a container of syrup, then it will

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mass because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Data**

Complete the following chart with your teacher as the demonstration is prepared.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Egg | Initial Mass of Egg | Type of Liquid Immersed In | Final Mass | Change in Mass (gain or loss) | Net Movement of Water |
| A |  |  |  |  |  |
| B |  |  |  |  |  |

**Analysis**

Before continuing with the analysis, read pages C56—C59 (stop at “Some transport requires energy” heading). Once you have read these pages, answer the following questions about this demonstration.

1. What happened to the mass of the egg that was placed in distilled water?
2. Explain what caused the change in mass of this egg.
3. What happened to the mass of the egg that was placed in syrup?
4. Explain what caused the change in mass of this egg.
5. Make an inference as to what part of the egg controlled the movement of water into or out of the “cell”.
6. What role did selective permeability play in this demonstration?
7. When the egg is placed in the container of distilled water, will water continue to move into the egg until there is no more water inside the container? Explain your answer.
8. Was homeostasis reached in this demonstration? Explain your answer.