**Experiment: Breaking Down Fats and Oils**

**Background**: Bile is a chemical produced by the liver and helps the body break down fats and oils in food.

**Aim**: To model the effect of bile

**Equipment**: 2 x 200mL beakers

Vegetable oil

Animal fat (butter)

Detergent

Warm tap water

20mL measuring cylinder

Stirring rod or spatula

**Method**:

1. Label the beakers ‘Oil’ and ‘Oil and detergent’.
2. Fill each beaker with 150mL of warm tap water.
3. Add 5mL of oil to each beaker.
4. Add a full dropper of detergent to the ‘Oil and detergent’ beaker.
5. Stir the contents of the beakers for 30 seconds and describe the contents in the table below.
6. Leave the beaker to settle for a couple of minutes. Describe the contents after it has settled
7. Wash out the two beakers and relabel the beakers ‘Fat’ and ‘Fat and detergent’.
8. Cut the block of fat into two pieces and repeat steps 2 to 6 for the fat.

**Results**:

|  |  |  |
| --- | --- | --- |
| Beaker contents | Observations after stirring | Observations after mixture settles |
| Oil and water |  |  |
| Oil, detergent and water |  |  |
| Fat and water |  |  |
| Fat, detergent and water |  |  |

**Discussion Questions:**

1. Why is warm water used instead of cold water?
2. Compare the changes in the two beakers containing oil?
3. Compare the changes in the two beakers containing fat?
4. How were the beakers containing detergent different to the ones without? What did the detergent do to the fat and oil?
5. In this experiment, what does the detergent represent? What is its role in the digestive system?
6. Which organ in the digestive system produces bile?
7. Where is excess bile stored?
8. Name another organ in the digestive system that produces chemicals that help digest food.