

Name: .....

Date: .....

## PRACTICAL EXPERIMENT

### Extraction of chlorophyll – chromatography of chlorophyll from spinach.

#### What makes a plant green?

One of the unique features of kingdom Plantae (plants) is their ability to make their own food. To do this, plant cells use a green pigment called chlorophyll. Chlorophyll is stored in special structures of cells called chloroplasts. Chlorophyll allows plants to convert the light energy from the Sun (along with water and carbon dioxide from the air) into sugars, through a process called photosynthesis. This green chlorophyll can be separated from other pigments using a separation process called chromatography. Plants have other pigments too – yellow and orange (carotenoids) as well as red these allow plants leaves to be different colours throughout the seasons and help plants capture as much light energy as possible.

#### Materials

- scissors
- baby spinach leaf
- test tube
- test tube rack
- rubbing alcohol
- chromatography paper (filter paper)
- stirring rod

#### Method

1. Cut up a few plant leaves (spinach) into very small pieces and place them in a test tube
2. Pour some rubbing alcohol into the test tube – just enough to cover the chopped up leaves
1. Stir it with the stirring rod (be careful to not brake the test tube) long enough to allow the chlorophyll to begin to stain the liquid green
2. Place the chromatography paper into the test tube – cut it long enough so that it reaches over the top edge
3. Observe the alcohol moving up the filter paper carrying the green pigment (and other coloured pigments) with it
4. Record your observations on the next page at time intervals

## EXPERIMENT DATA:

Time:	Observations:
5 min	
15 min	
30 min	
45 min	
1 hr	
1.5 hr	
2 hrs	

Comments:

### Discuss with your partner:

1. Do all leaves have the same amount of chlorophyll? Why or why not?
2. How many types of pigment were present in the leaf?
3. Do mushrooms (kingdom Fungi) have chlorophyll?

**Once you have completed your experiment and recorded data and observations you will need to complete an experiment report – ask your teacher for a scientific report template. If you need help, ask!**