

Science

I have found two different scientific activities that relate to food. If you have the material's you need for the cucumber experiment, it looks fun and I would love to hear how you have got on! If not, the other activity is about having a healthy balanced diet. We did some work on this earlier in the year, but it is always good to see how much we remember.

Activity 1 - EXPERIMENT: CUCUMBER CHEMISTRY

Carla makes a chopped liver, potato chip and cucumber sandwich. In this fun experiment, you will use a cucumber to explore how different substances can absorb water from their environments. You may be surprised how the cucumber will change when exposed to salt, sugar or baking powder.

MATERIALS

Cucumber,
Sugar,
Baking powder,
Salt,
Kitchen scales (optional),
Knife,
4 small plates,
teaspoon,
watch/clock/timer

PREPARATIONS

Before you start

- Read carefully though all the instructions so you know what you will be doing.
- Get all the materials and equipment ready
- Prepare a results table ready for writing up your results.

INSTRUCTIONS

Step 1: Take the unpeeled cucumber and with the help of an adult, cut four equal size pieces with a knife. The slices should be about 0.5cm thick. If you have kitchen scales, measure the weight of each slice and write it down.

Step 2: Observe. What does the cucumber slice look like? Is it very wet? How does it feel when you touch it? Does it feel crisp, hard or squishy? When you pick it up, does it keep its stiffness?

Step 3: Put each slice on a different plate; each slice will now get a different treatment.

Step 4: First, measure out one teaspoon of salt. For the first slice, carefully pour the teaspoon of salt into a pile top of the cucumber slice.

Step 5: Next, measure out one teaspoon of sugar. Build a little pile with the sugar on top of the second cucumber slice.

Step 6: Then, measure out one teaspoon of baking powder. Pile the baking powder on top of the third cucumber slice.

Step 7: Cucumber slice four will be your control. This means that it receives no treatment and is the one you will compare results. Leave it on the plate as it is.

Step 8: Observe all four cucumber slices for 30 minutes. Watch closely what happens to the different substances you have put on each slice. You can also use the teaspoon to gently press the pile onto the cucumber occasionally. (Be sure to clean the teaspoon between touching it to each substance.) Do you notice any texture change of the different substances? What happens to them over time?

Step 9: During the same 30 minutes, touch the salt, sugar and baking powder every five minutes with your fingers. (Be sure you rinse your fingers off between each.)

How do they feel? Do they start to change over time? Note: If the substances become wet, take a clean spoon and carefully remove the pile of sugar, salt or baking powder and replace it with the same amount of fresh sugar, salt or baking powder. Make a note of how often you changed the pile for each substance. Which of the substances became wet first? How often do you think you will have to replace the salt, sugar or baking powder?

Step 10: After 30 minutes remove all the sugar, salt, and baking soda from the cucumbers (keep track of which slice had what substance). Use your fingers to clean the cucumber slices of any remaining substance. When touching the different cucumber slices, how do they feel?

Step 11: Once all your cucumber slices are clean, if you have kitchen scales, you can weigh each cucumber slice and note any changes. Compare this value with the number you wrote down in the beginning. What happened to the cucumber slice during the activity? Did it become heavier or lighter? Comparing the different substances, which one resulted in the biggest change? Can you think of a reason why?

Step 12: Finally, cut your cucumber slices in half and compare the texture and thickness of each slice with that of your control. Did their texture and appearance change? If yes, how? Did the slice thickness change? Which substance had the most noticeable effect? What does that tell you about the substance's ability to attract water?

Extra: During your test of some of these substances, the cucumber lost a lot of water. Do you think you could rehydrate the cucumber again? Try placing each cucumber slice into a clean cup of fresh water and let it sit overnight. Do the cucumber slices look different in the morning?

Research: Find out what "Hydroscopic" means.

Activity 2 - INVESTIGATION – A BALANCED DIET

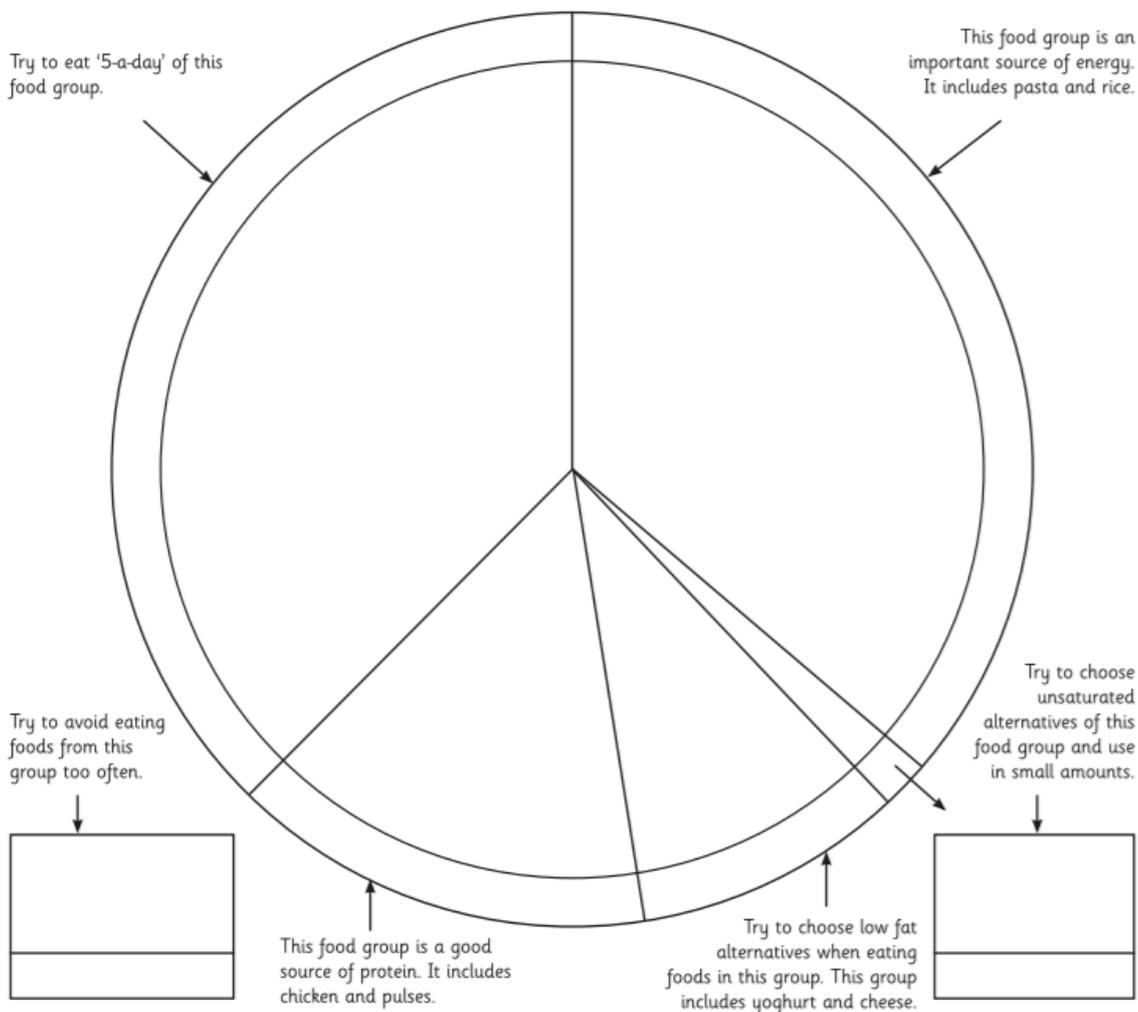
Below is an empty plate. Either print it out or draw it into your book.

Label each section, using these labels:

- Starchy foods and carbohydrates
- Fruit and vegetables
- Protein, such as meat, fish, eggs and pulses
- Dairy (milk)
- Fats and sugars
- Oils and spreads

If you need a reminder, the NHS website has lots of information

<https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>



Can you name any food that goes in each section?

Challenge:

Can you make a Carla style sandwich that uses food from each section?