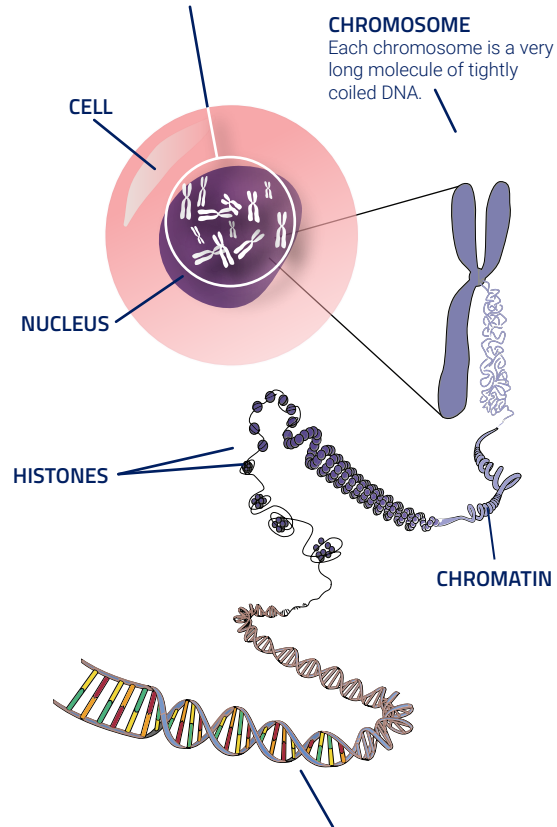


THE GENOME

A genome is an organism's complete set of DNA—basically a blueprint for an organism's structure and function.



Chromosomes and their genes are made of a molecule called **DNA** (deoxyribonucleic acid). DNA molecules carry the code that controls what cells are made of and what they do.

HOW MUCH DNA YOU HAVE?

If you could look closely at your DNA, you would see it looks like a very thin, silvery thread. Each of the roughly 37 trillion cells in your body contains approximately two metres of DNA.

Every person's DNA is 99.9% similar to that of another person. Since each person has 2 metres of DNA per cell, there's only 2 millimetres of DNA per cell that makes you unique!



BEFORE YOU START

Mix your buffer solution: 1 teaspoon of table salt, 1 part dish soap to 9 parts water. Make 100mL.

THINGS YOU NEED

- Flesh of 1 Kiwi*
- Table salt
- Water
- Ziploc bag
- Container (a glass or measuring cylinder)
- Spoon or straw
- Elastic band
- Liquid dish detergent
- Cheesecloth (3 layers)
- Cold isopropanol (also called rubbing alcohol) 70% will do, 90% is best
- Wooden stir stick

*Other soft fruits work well, too e.g. strawberries, banana



Genomics is one of the most rapidly advancing areas of science with research providing solutions to a vast number of global challenges.

Genome BC believes in supporting education by providing tools to teach students about this complex topic in new and interesting ways.

Geneskool provides a variety of resources and programs that make learning about genomics fun for students in grades 9 through 12.

Visit genomebc.ca/geneskool

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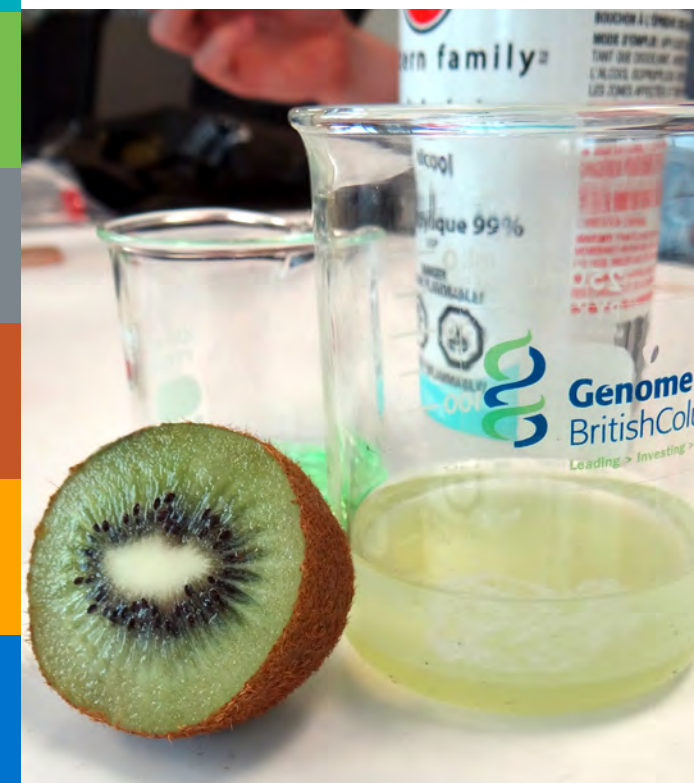


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STEP 1

COLLECT AND PREPARE YOUR SAMPLE

Scoop out the kiwi flesh into a Ziploc bag and mash for 2 minutes.

Mashing helps to break apart the cells and loosen the tough cell wall.



Tip: You can get extra juice by squeezing the kiwi through the cloth.

STEP 3

FILTER YOUR SAMPLE

Pour the kiwi mash through the filter. The pulp and seeds should be left in the cloth and there should be a greenish liquid in the container.

STEP 2

ADD YOUR BUFFER SOLUTION

Add 10mL of buffer solution and mix gently for a minute.

The salt in the buffer solution to precipitate proteins and carbohydrates away from the DNA. The soap breaks open the fat and nuclear membranes.



STEP 4

PRECIPITATING THE DNA

Add two parts of the cold isopropanol to one part kiwi liquid.

Slowly pour the isopropanol down the back of a spoon as it needs to form a layer on top of the kiwi liquid.

Let the liquid sit for a few minutes. The DNA should precipitate where the kiwi liquid meets the alcohol.

DNA dissolves in water but precipitates in alcohol!



You can use the stir stick to spool some out of the container!