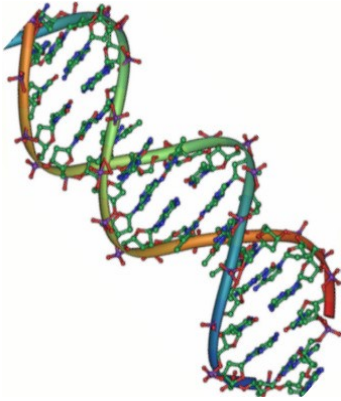


“Breaking Down Bread”

A Lesson on DNA Extraction



BACKGROUND INFORMATION:

When farmers are making decisions about what varieties of wheat to plant, they are thinking about DNA. Each kind of wheat has DNA that contains certain characteristics to help it grow better in a particular region, season, etc. When a farmer chooses to use a genetically modified variety of wheat that is drought or pest resistant, or has some other desirable quality, he/she is using wheat that has had its DNA purposefully altered. So, as you can see, DNA is important in many ways, including the improvement of crops that become the food on our table.

PURPOSE:

Takes a very abstract subject and brings it to a level that kids can see, work with and relate to. DNA is something that can be difficult to grasp because it cannot be seen. Kids are just told that it is there, making up everything that lives. It is what our body and all living things are made up of, but we can't see it, so how do we know it's really there? This exercise brings it down to a more understandable visual level, while showing kids that even things that seem simple, like bread, are actually pretty complex when you break it down.

MATERIALS NEEDED:

- Water
- 1 Beaker
- Raw Wheat Germ (not cooked)
- Liquid Detergent (clear referred)
- Spoon
- Stirrer
- Baking Soda
- Meat Tenderizer
- Pipette
- Test Tube
- Denatured Alcohol
- Paper Towels

PROCEDURE:

1. Pour 100 ml of water into a cup/beaker.
2. Add one spoonful of raw wheat germ and stir a few times.
3. Add one squirt of liquid detergent, stir a few more times, but not so hard that you generate bubbles.
4. Add 1 tsp baking soda and 1/8 tsp meat tenderizer; stir for 5-10 minutes, then let solids settle to the bottom.
5. Pipette off some of the liquid at the top (avoid solids at the bottom) into a test tube.
6. Add denatured alcohol until you have the same amount of alcohol as the mixture. and watch the DNA appear.

LEVEL: 5-7 Grade

SUBJECTS/STANDARDS:

Subject:
Science

Standards:
Science as Inquiry
Life Science

ACTIVITY DESCRIPTION:

Students will actively take part in an experiment to see if they can extract DNA from wheat. This activity will show students that all living things contain DNA. This will also give the students an appreciation for science.

QUESTION:

Does wheat contain DNA?

HYPOTHESIS:

Students will predict if they can extract DNA from wheat.

CONCLUSION:

Students will extract the DNA and record if their hypothesis was correct.

SOURCE:

Saint Louis Science Center