

# “Breaking Down Bread”

Looking closer to see that something that seems so simple, like the bread on our table, isn't really so simple after all.

**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.



**Taking it agriculture:** When farmers are making decisions about what varieties of wheat to plant, they are thinking about DNA. Each kind of wheat has DNA that give it 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 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.

## Wheat Germ DNA Extraction

### Materials:

- Water
- 1 beaker
- Raw wheat germ (not cooked)
- Liquid Soap
- Spoon
- Stirrer
- Baking Soda
- Meat Tenderizer
- Pipette
- Test Tube

### Directions:

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 soap, 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, do not want solids at the bottom, into a test tube
6. Add denatured alcohol and watch the DNA appear!

