

## What should be in my procedure?

1. **Title**- This is the one place that you can be a bit clever.
2. **Experimental Question**- It must be in the form of a cause and effect question.
3. **Explanation/Overview**: What is the relevance for the topic. Why is it interesting? Your explanation cannot be in first person.
4. **Materials List** - Should include size and quantity
5. **Safety Symbols**- These must be included if you will need to take any safety precautions, and please you also need to follow them in your procedure.
6. **Procedure** -Step by step. Make sure to include the following areas.
  - a. How to set up the variable.
  - b. How to set up the invention experiment.
  - c. Explains what type of data will be collected.
7. **Graphics/Diagrams** -Include at least one, you can do more, graphic that will help someone to understand how to set up your lab for your invention. (This is not an option.) -Most often a good graphic is hand drawn. It is difficult to find a graphic on line that explains the set-up of your procedure.

*Remember- the best (A-B) procedures are not written in first or second person!  
Do not write with the words YOU, I, WE etc.!*

**The procedure will lose points if not written in third person!**

**Homework:** Come to class with a draft of you procedure part, should be at lest 5 steps.

**The final procedure must**

- \* Be typed
- \* Contain all parts explained on this paper
- \* If working with a partner in this same period you **must** each have your own copy of the procedure (for peer editing)

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**Please note: The following example is an example from a science project. Your invention project will be very similar, though the subject matter will be different. The example will be an aid in helping you write your procedures.**

**(THE EXAMPLE: BACK PAGE)**

## Which way is up?

—An experiment examining gravitropism in plants.



**Experimental Question:** How does the distance from the center of a turntable effect the direction of a growth (stem and root) of a rye grass seed?

**Explanation:** Plants grow in response to gravity. Plants respond with their stems growing up and their roots growing down.

With the idea that in our future we will be able to explore space and live in places with false gravity it is important to see how a plant will respond to the false gravity that could be created by a constant spinning motion.

### Procedure:

#### Set up

1. Cut out a cardboard circle that has the same radius as a record. An old record can be used with the concept that it will not be able to be played again.
2. Make marks on the circle as to where the canisters will be placed. All measurements are to the first edge of the canister.
  - a. Put 5 canisters as close the center as possible. Label cups A1, A2, A3, A4, A5
  - b. Put 5 canisters 5 cm away from the center. Label cups B1, B2, B3, B4, B5
  - c. Put 5 canisters 10 cm away from the center. Label cups C
  - d. Put 5 canisters 15 cm from the center. Label cups D
  - e. Put the last 5 canisters on the table next to the turntable, this will be the control group. Label cups E
3. Drill or punch two holes at the bottom of each canister for draining.
4. Fill each canister full with soil.
5. Place 2 seeds just under the surface of the soil and water the canisters, allow them to drain for 1 hour before moving to step #6.
6. Glue the canisters in place on the “record”.
7. Plug in and turn on the turntable. The turntable will remain on during the duration of the experiment, except for the times when data is taken.
8. Seeds will be watered with a mister twice daily. The tops of the canisters will be misted every morning and every evening.



### Materials List

Film canisters- 25  
Potting Soil- approx. 3 lb.  
Rye Grass Seeds  
Turntable  
Table by the window  
Hot glue gun  
Cardboard circle  
Metric Ruler  
Protractor

### Data Collected:

Every other day collect the following data on the seeds.

- \* Length of grass stem.
- \* Angle of grass stem in reference to the top of the soil.

After two weeks the following data will be collected.

- \* Length of grass root.
- \* Angle of grass root in reference to the top of the soil. (The main root will be the root measured)

*The root data is only collected at the end as to not damage the development of the seed.*