Review

# Scientific Method

Has 7 steps

1) Ask a **Question** (It must be **Testable**)

-Include "Which", "Do/Does", "How", "What", "Why"?

-To find an answer you must do a test

2) Make a **Hypothesis** - Write what you think you will find out, and why you think this.(or what you think the answer will be). Is there a way to test you hypothesis.

-You now have to design an experiment to test your hypothesis

3) **Design an Experiment** - what are you going to do to test your hypothesis

4) **List Materials** - list all the materials that you will use in the investigation

5) **Procedure** - Carry out the investigation and make a detailed list of steps in which you followed .

6) **Results/observations** - Record what you observed when you carried out the investigation/procedures

7a) **Conclusion** - From what you observed how would you answer your original question. Was your hypothesis correct? Give reasons of why or why not.

Once you have completed the scientific method you must:

7b) -**Communicate** your results and conclusions with others

- If possible, **relate** what you have learned to the world outside the classroom.

# Problem/Question

John watches his grandmother bake bread. He ask his grandmother what makes the bread rise.
She explains that yeast releases a gas as it feeds on sugar.

John wonders if the amount of sugar used in the recipe will affect the size of the bread loaf?

(Do some research to make an educated guess)

After John talks to his teacher and researches about fermentation with baking, he comes up with a hypothesis.

## 2) Hypothesis

"If more sugar is added, then the bread will rise higher."

## 3) Design the Experiment

Write out what you are going to do.
Make 4 batches of bread (4 Trials)

Use grandmother's recipe, keep all ingredients the same except for the amount of sugar.

Original recipe

Step 1) In a large bowl, dissolve yeast in warm water. Add the 3 Tbsp sugar, salt, oil and 3 cups flour. Beat until smooth with a fork. Stir in enough remaining flour, 1/2 cup at a time, to form a soft dough.

Step 2) Turn onto a floured surface; knead until smooth and elastic, about 8-10 minutes. Place in a greased bowl, turning once to grease the top. Cover and let rise in a warm place until doubled, about 1-1/2 hours. (Record height by measuring with a ruler to the nearest millimeter)

4) John writes out his **materials** (all ingredients and utensils) for his experiment

6 cups of flour
2 Tbsp canola oil
1 Tbsp salt
2 cups of warm water
1 package of dry yeast
4 Tbsp of sugar
5 Tbsp of sugar
6 Tbsp of sugar
7 Tbsp of sugar
4 pans same size ( 9x5 )
measuring cups
measuring spoons
fork
Bowls
Baking grease
Ruler

Repeat x4

## 5) Procedures

Bread 1

Step 1) In a large bowl, dissolve yeast in warm water. Add the 4 Tbsp sugar, salt, oil and 3 cups flour. Beat until smooth with a fork. Stir in enough remaining flour, 1/2 cup at a time, to form a soft dough.

Step 2) Turn onto a floured surface; knead until smooth and elastic, about 8-10 minutes. Place in a greased bowl, turning once to grease the top. Cover and let rise in a warm place until doubled, about 1-1/2 hours. (Record length, width, height) by measuring with a ruler to the nearest millimeter)

Step 3) Punch dough down. Turn onto a lightly floured surface; divide dough in half. Shape each into a loaf. Place in two greased 9x5-in. loaf pans. Cover and let rise until doubled, about 30-45 minutes.

Step 4) Bake at 375° for 30-35 minutes or until golden brown and bread sounds hollow when tapped. Remove from pans to wire racks to cool. Measure again (Length, width, height) and record

**Bread 2**

Repeat Step 1 but this time use 5 Tbsp of sugar instead of 4. Again record height

**Bread 3**

Repeat Step 1 but this time use 6 Tbsp of sugar instead of 4. Again record height

**Bread 4**

Repeat Step 1 but this time use 7 Tbsp of sugar instead of 4. Again record height

May want to repeat each bread again as additional trials

## 6) Results and observations

May want to design a chart, take pictures and explain what has happened. If it is cooked how does it taste. Be very detailed when explaining. Compare

Size of Baked Bread (LxWxH) $cm^3$

| | Size of Bread Loaf ($cm^3$) Trials | | | |
|---|---|---|---|---|
| Amt. of Sugar (g.) | 1 | 2 | 3 | Average Size ($cm^3$) |
| 50 Control group 3 Tbsp | 1296 | 1440 | 1296 | 1344 |
| 60 4 Tbsp | 1404 | 1296 | 1440 | 1380 |
| 70 5 Tbsp | 1638 | 1638 | 1560 | 1612 |
| 80 6 Tbsp | 1404 | 1296 | 1296 | 1332 |
| 90 | 1080 | 1200 | 972 | 1084 |

Should to use words to explain what is happening in your chart.

7)a) Conclusions

John finds that 70g (5 Tbsp) of sugar produces the largest loaf. His hypothesis is accepted.

7b) He shares his findings with his grandmother, teacherand friends.

# Representing Data Visually

Karen recorded, for a week in February, the amount of snowfall in Blackville, New Brunswick. Below is the data collected. Draw a bar graph to show her findings.

Remember to include:

Title, Scale, Label x and y axis with titles

Be neat

| Day | Snowfall (cm) |
|---|---|
| Monday | 1 |
| Tuesday | 3 |
| Wednesday | 0 |
| Thursday | 25 |
| Friday | 10 |
| Saturday | 30 |
| Sunday | 7 |

Pass this in