SAE Information - AgriScience Fair

Name:	AgriScience Fair
SAE Type:	Research/Experimentation
AFNR Pathway:	Plant Systems
SAE Subcategory:	Grain Crops
Date Range:	11/1/2017 - 2/6/2018

Scope - AgriScience Fair

Year	Description
2017	I researched and completed an experiment on the effects of planting depth on the growth of sweet corn. I drew conclusions and started writing a research paper.
2018	I finnished writing a research paper and submitted to the Arthur Berkey Science Fair. I competed in my local science fair in hopes of qualifying for the state science fair.

SAE Plan - AgriScience Fair

Description

The purpose of the research study involved finding the optimal planting depth of sweet corn for optimal plant growth, conducting a viable research project, and communicating findings effectively. Research procedures included planting sweet corn at various depth, measuring the plants every day, finding the average heights of each planting depth, finding the average growth per day for each planting depth, and creating graphs and a report from the data.
Results of the study are that in a two week time period the planting depth of sweet corn doesn't scientifically affect daily growth and end height.
In terms of project safety, an important area of safety includes checking the wiring on the grow lights so no fires are started.

Time Investment

To learn more about my research project, I reviewed other similar research such as "Planting Depth Effects on Corn" by DuPont Pioneer, "How Does Corn Planting Depth Affect Stand Establishment?" by Cornell University, "Corn Planting Depth Effect on Final Population and Yield" by the Learning Center at Scott, Mississippi and "Seed and Seedling Biology" by PennState Extension.
In my research project, I plan to spend about 15 hours setting up my research project or learning about similar projects,10 hours developing my project and 40 hours sharing results with others or developing my final report.
Key dates or events in my project include November 19, when my first trial started, December 2, when my first trial ended, December 3, when my second trial started, December 16, when my second trial ended, January 19, when my research report is due, and February 4, when my display board is due.

Financial Investment

Potential funding for my project is from my Parents.
Main cash expense categories to support my project includes planting soil, grow lights, planting pots, and planting trays.
In terms of total cost, my project will require $82, however, that is what my project necessities are valued at. All the things I needed for my project my family had already bought years ago.

Learning Objectives

From my project, I hope to gain knowledge and skills in demonstrating proper planting procedures and post-planting care. (PS.03.02.03.a), applying knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.(PS.01.02), identifying the components, the types and the functions of plant roots.(PS.01.02.02.a), communicating results effectively, and building a valid experiment.

Pictures - AgriScience Fair

This is an image of the 1.3cm(0.5in) planting depth at the end of the second trial. Four of the Ten plants has emerged. The heights at seven days include plant 0.5BB-17.5cm(6.875in), 0.5EB-7.9cm(3.125in), 0.5IB-15.9cm(6.25in), and 0.5JB-26.4cm(10.375in).

This is an image of the 2.5cm(1in) planting depth at the end of the second trial. Zero of the ten plants emerged.

This is an image of the 3.8cm(1.5in) planting depth at the end of the second trial. Two of the Ten plants has emerged. The heights at seven days include plant 1.5EB-16.8cm(6.625in) and 1.5HB-21.6cm(8.5in).

This is an image of the 5cm(2in) planting depth at the end of the second trial. One of the Ten plants has emerged. The heights at seven days include plant 2HB-15.6cm(6.125in).

This is an image of the 6.4cm(2.5in) planting depth at the end of the second trial. One of the Ten plants has emerged. The heights at seven days include plant 2.5IB-21cm(8.25in).

Pictures - AgriScience Fair

This is an image of the 1.3cm(0.5in) planting depth during the first trial at the halfway point(seven days). Three of the Ten plants has emerged. The heights at seven days include plant 0.5BB-4.4cm(1.75in), 0.5IB-3.2cm(1.25in), and 0.5JB-7cm(2.75in).

This is an image of the 2.5cm(1in) planting depth during the first trial at the halfway point(seven days). Zero of the Ten plants has emerged.

This is an image of the 3.8cm(1.5in) planting depth during the first trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 1.5EB-2.2cm(0.875in).

This is an image of the 5cm(2in) planting depth during the first trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 2HB-1.3cm(0.5in).

This is an image of the 6.4cm(2.5in) planting depth during the second trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 2.5IB-1.6cm(0.625in).

Pictures - AgriScience Fair

For both trials in the experiment Miracle-Gro, Moisture Control Potting Mix was used. The purpose of this soil is to protect from over and under watering.

Again, each pot in the second trial of the experiment was filled with 3.75 ounces of Miracle Grow Moisture Control Potting Mix. This amount of soil allowed there to be enough depth to plant a kernel 2.5 inches deep, the deepest depth in the experiment.

The same procedure was used in the second trial as was used in the first. Again, a wooden dowel with marks for each planting depth of the kernels was used to plant the corn. A kernel was placed on top of the soil and pushed into the dirt using the pencil. Once the corresponding mark of the planting depth was at the level of the soil the kernel stopped being pushed down and the hole was covered.

In the second trial, each pot was again watered with 150 milliliters of water to saturate the soil. This amount of water was given to the plants because they were going to be covered to keep the moisture in, so they would not need to be watered until one of them sprouted and the covers were taken off.

Again in the second trial, after filling each pot with 3.75 ounces of soil, planting the corn kernels at the correct depth, and then watering each plant with 150 milliliters of water, each study group of plants was covered with a plastic cover. This helps help ensure that moisture in the plants stays, so they don't need to be to be watered as often.

Pictures - AgriScience Fair

This is an image of the 1.3cm(0.5in) planting at the end the first trial (fourteen days). Four of the Ten plants have emerged. The heights at fourteen days include plant 0.5CA-16.2cm(6.375in), 0.5FA-21cm (8.25in), 0.5GA-22.2cm(8.75in), 0.5IA-17.8cm(7in).

This is an image of the 2.4cm(1in) planting at the end the first trial (fourteen days). Three of the Ten plants have emerged. The heights at fourteen days include plant 1FA-8.9cm(3.5in), 1HA-3.2cm(1.25in), 1JA-11.1cm(4.5in).

This is an image of the 3.8cm(1.5in) planting at the end the first trial (fourteen days). Three of the Ten plants have emerged. The heights at fourteen days include plant 1.5AA-18.1cm(7.125in), 1.5DA-12.1cm (4.75in), 1.5JA-13cm(5.125in).

This is an image of the 5cm(2in) planting at the end the first trial (fourteen days). Four of the Ten plants have emerged. The heights at fourteen days include plant 2AA-15.2cm(6in), 2BA-15.2cm(6in), 2CA-10.5cm(4.125in), 2GA-15.6cm(6.125in).

This is an image of the 6.4cm(2.5in) planting at the end the first trial (fourteen days). Two of the Ten plants have emerged. The heights at fourteen days include plant 2.5BA-14.6cm(5.75in), 2.5EA-10.2cm(4in).

Pictures - AgriScience Fair

This is an image of the 1.3cm(0.5in) planting depth during the first trial at the halfway point(seven days). Four of the Ten plants have emerged. The heights at seven days include plant 0.5CA-2.2cm(0.875in), 0.5FA-3.8cm(1.5in), 0.5GA-4.4cm(1.75in), 0.5IA-4.4cm(1.75in).

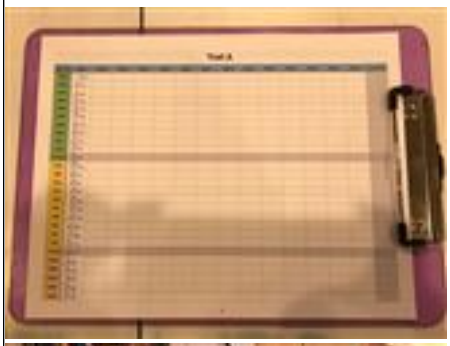
This is an image of the 6.4cm(2.5in) planting depth during the first trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 2.5BA-0.2cm(0.0625in).

This is an image of the 5cm(2in) planting depth during the first trial at the halfway point(seven days). Two of the Ten plants have emerged. The heights at seven days include plant 2BA-0.2cm(0.0625in), 2CA-1cm (0.375in).

This is an image of the 3.8cm(1.5in) planting depth during the first trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 1.5AA-2.2cm(0.875in).

This is an image of the 2.5cm(1in) planting depth during the first trial at the halfway point(seven days). One of the Ten plants has emerged. The heights at seven days include plant 1JA-0.2cm(0.0625in).

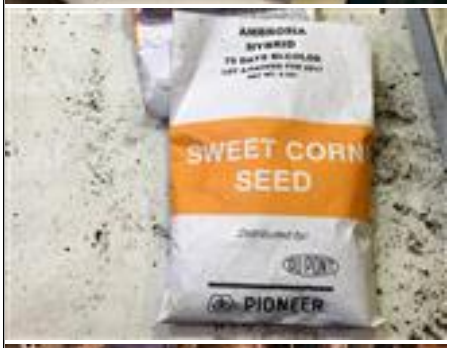
Pictures - AgriScience Fair



A spreadsheet was created to house the data during the experiment. There are 14 columns for every day of the experiment trial and a row for each plant in the experiment. There is also a row where the average heights of the plants each day in each test group were calculated. Then, once the 14 days were completed the average daily growth of each plant was calculated.

For the experiment, five trays that have ten pots in each tray was set up. The pots were labeled with the planting depth, pot letter, and trial letter. An example would be when the kernel is planted a 0.5in, it is the first plant, and in the first trial, the label would be .5AA.

Each pot in the experiment was filled with 3.75 ounces of Miracle Grow Moisture Control Potting Mix. This amount of soil allowed there to be enough depth to plant a kernel 2.5 inches deep, the deepest depth in the experiment.

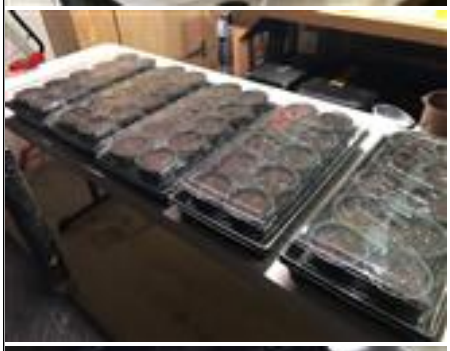


The sweet corn used for the experiment is Pioneer Ambrosia Hybrid seed. It is treated with fungicides Captan, Thiram, Mefenoxan, and Difenoconazole and is recommended to be planted at a depth between 1 and 2 inches.

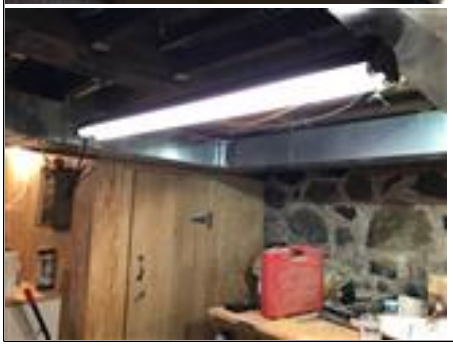
A wooden dowel with marks for each planting depth of the kernels was used to plant the corn. A kernel was placed on top of the soil and was pushed into the dirt using the pencil. Once the corresponding mark of the planting depth was at the level of the soil the kernel stopped being pushed down and the hole was covered.

Pictures - AgriScience Fair

Each pot was watered with 150 milliliters of water to saturate the soil. This amount of water was given to the plants because they were going to be covered to keep the moisture in, so they would not need to be watered until one of them sprouted and the covers were taken off.



After filling each pot with 3.75 ounces of soil, planting the corn kernels at the correct depth, and then watering each plant with 150 milliliters of water each study group of plants was covered with a plastic cover. This helps keep moisture in the plants so they don't need to be to be watered as often.



For growing the corn a grow light was set up. There are two 48 inch UV 40 watt grow lights in the hanger. The light is set on a timer to be on for 14 hours every day, to represent the amount of sunlight there is during the summer when sweet corn is normally planted.

Journal - Experience-related Activity - AgriScience Fair

Date	Activity / Description	Hours
2/6/2018	**Practicing effective communications** I participated in my local Agriscience Fair in hopes of making it to the state level. While presenting I made sure to sound professional and knowledgable.	2.50
2/5/2018	**Practicing effective communications** I worked on finishing my presentation board, and I worked on answering possible judge's questions.	3.00
2/4/2018	**Practicing effective communications** I worked on creating my presentation board. I made sure that I had all the aspects I needed for my board present.	5.00
2/2/2018	**Practicing effective communications** I worked on creating a title for my project that caught attention and effectively explained it.	0.25
1/28/2018	**Using scientific inquiry, conducting investigation** I worked on creating my presentation board for the science fair. I condensed my report into bullets and smaller paragraph for my board.	2.00
1/17/2018	**Practicing effective communications** I finished writing my skill development paragraph and reread all of my paper.	2.00
1/16/2018	**Practicing effective communications** I worked on writing my skill development paragraph. I used the national standards to create my paragraph.	2.00
1/15/2018	**Practicing effective communications** I worked on formatting my paper correctly using an example for the FFA site. I created my table of contents and created citations.	2.00
1/13/2018	**Practicing effective communications** I worked on my discussion and conclusion. I also worked on finishing my abstract. I also wrote my introduction.	6.00
1/11/2018	**Practicing effective communications** I started writing my discussion and conclusion section of my paper. I made sure to use the judge's rubric to include all that I need.	2.00
1/10/2018	**Practicing effective communications** I worked on writing my literature review. I focused on having good sources and effective writing.	2.00
1/9/2018	**Practicing effective communications** I worked on writing the beginning of my abstract. I also started my literature review and looked up articles and studies to put in that section.	2.00
1/8/2018	**Practicing effective communications** I worked on my results section by describing the figures. I also worked on starting my abstract.	2.00
1/6/2018	**Practicing effective communications** I created charts and tables to house my data effectively. I put those charts and tales in my report in the Results section. Under each figure, I wrote what each data showed, but I did not discuss or draw conclusions in that part of the report.	6.00
1/3/2018	**Practicing effective communications** I started writing my research report. I started by writing the Materials and Methods section. I used the judge's rubric and a report example from a previous student. I also looked up other studies that were similar to mine that I could put in the Literature Review section.	6.00

Journal - Experience-related Activity - AgriScience Fair

Date	Activity / Description	Hours
12/29/2017	**Practicing effective communications** I computed the average daily growth for each plant in both trials. I did this by first finding how much growth the plant made between each day, then I added those numbers and divided that number by 13, the number of days the plants grew. I also found the average daily growth of the 10 plants in each planting depth test group, and just the average of the plants the germinated I each test group. I did this by adding the average daily growth of each plant in the test group, then dividing that number by either 10 or the number of plants that germinated. I also calculated that average end heights of the 10 plants in each test group, and just the plants that germinated in each test group. I did this by adding the end heights of each plant in the test group, then dividing that number by either 10 or the number of plants that germinated in the test group.	6.00
12/17/2017	**Managing, producing, harvesting and handling crops** I cleaned up my project today. I started by pulling out the corn from the soil so that The soil can be reused for flower planting in the spring. Then I washed out the pots to get the rest of the dirt out. I unplugged the grow lights and let them cool until I could put them away. I cleaned off the table that plants were on and put that away. Finally, I cleaned up the ground of any loose soil.	1.50
12/16/2017	**Using scientific inquiry, conducting investigation** Today is the final day of the second trial. 8 out of the 50 plants germinated, which is very disappointing. I took the final measurements and calculated the final averages. Plant 0.5BB-17.5cm(6.875in), 0.5EB-7.9cm(3.125in), 0.5IB-15.9cm(6.25in), 0.5JB-26.4cm(10.375in). 1.5EB-16.8cm(6.625in), 1.5HB-21.6cm(8.5cm), 2HB-15.6cm(6.125in), 2.5IB21cm(8.25in).	0.08
12/15/2017	**Using scientific inquiry, conducting investigation** I measured the plants and found the averages again. Plant 0.5BB-15.6cm(6.125in), 0.5EB-6cm(2.375in), 0.5IB-14cm(5.5in), 0.5IB-24.1cm(9.5in), 1.5EB-14cm(5.5cm), 1.5HB-18.1cm (7.125in), 2HB-13.7cm(5.375in), 2.5IB-17.5cm(6.875in).	0.08
12/14/2017	**Using scientific inquiry, conducting investigation** I measured all the plants again and found averages. No more plants have emerged. Plant 0.5BB-14cm(5.5in), 0.5EB-4.8cm(1.875in), 0.5IB-11.1cm(4.375in), 0.5JB-22.2cm(8.75in), 1.5EB-12.1cm(4.75in), 1.5HB-15.6cm(6.125in), 2HB-11.4cm(4.5in), 2.5IB-14.3cm(5.625in).	0.08
12/13/2017	**Using scientific inquiry, conducting investigation** No more plants have emerged again. I measured each plant and n=continued to find the average of each planting depth like the days prior. Plant 0.5BB-12.7cm(5in), 0.5EB-3.5cm(1.375in), 0.5IB-9.5cm(3.75in), 0.5JB-18.4cm(7.25in), 1.5EB-9.8cm(3.875in), 1.5HB-12.1cm(4.75in), 2HB-8.9cm(3.5in), 2.5IB10.8cm (4.25in).	0.08
12/12/2017	**Using scientific inquiry, conducting investigation** No more plants emerged. None of the plants from the 2.5cm(1in) planting depth have emerged, and I don't think they will. I also watered each plant with 5 milliliters of water. Plant 0.5BB-10.8cm(4.25in), 0.5EB-2.5cm(1in), 0.5IB-7.1cm(2.8125in), 0.5JB-15.9cm(6.25in), 1.3EB-7.6cm(3in), 1.5HB-8.6cm(3.375in), 2HB-6.4cm(2.5in), 2.5IB-7.6cm(3in).	0.50
12/11/2017	**Using scientific inquiry, conducting investigation** One more plant came up today form the 1.3cm(0.5in) planting depth. Pant 0.5BB-8.6cm(3.375in), 0.5EB-1.3cm(0.5in), 0.5IB-5.4cm(2.125in), 0.5JB-13.3cm(5.25in), 1.5EB-6cm(2.375in), 1.5HB-5.7cm(2.25in), 2HB-2.9cm(1.125in), 2.5IB-5.4cm(2.125in).	0.08
12/10/2017	**Using scientific inquiry, conducting investigation** Today, one more plant emerged from the 3.8cm(1.5in) planting depth. Plant 0.5BB-6.7cm(2.625in), 0.5IB-3.8cm(1.5cm), 0.5JB-10.2cm(4in), 1.5EB-4.1cm(1.625in), 1.5HB-2.9cm(1.125in), 2HB-1.9cm(0.75in), 2.5IB-2.9cm(2.125in).	0.08
12/9/2017	**Using scientific inquiry, conducting investigation** Today is the halfway mark in the second trial. I water all the plants with 30 milliliters of water. Three plants emerged today, one from the 3.8cm(1.5in), one from the 5cm(2in), and one form the 6.4cm(2.5in) planting depth Plant 0.5BB-4.4cm(1.75in), 0.5IB-3.2cm(1.25in), 0.5JB-7cm(2.75in), 1.5EB-2.2cm(.875in), 2HB-1.3cm(0.5in), 2.5IB-1.7cm(0.625in).	0.50
12/8/2017	**Using scientific inquiry, conducting investigation** One more plant emerged today from the 1.3cm(0.5in) planting depth. Plant 0.5BB-2.9cm(1.375in), 0.5IB-2.2cm(0.875in), 0.5JB-4.4cm(1.75in).	0.08
12/7/2017	**Using scientific inquiry, conducting investigation** Today, two plants emerged for the 1.3cm planting depth. Plant 0.5BB-0.3cm(0.375in), 0.5JB-1.9cm(0.75in).	0.08
12/6/2017	**Using scientific inquiry, conducting investigation** Again, none of the plants have emerged.	0.03
12/5/2017	**Using scientific inquiry, conducting investigation** None of the plants have emerged yet, again	0.03
12/4/2017	**Using scientific inquiry, conducting investigation** I measured each plant and none of the plants have emerged yet.	0.03
12/3/2017	**Using scientific inquiry, conducting investigation** Today I started the next trial in my experiment. I put 3.75 ounces of soil in each pot and planted one corn kernel, same brand, and type as the first trial. 10 were planted at each depth, 1.3cm (0.5in), 2.5cm(1in), 3.8cm(1.5in), 5cm(2in), 6.4cm(2.5in). Each plant was then water with 150 ml of water. Each test group was covered with a plastic cover to keep in moisture. The grow light was kept in the same spot and the plants were kept in the same spot.	3.00
12/2/2017	**Using scientific inquiry, conducting investigation** Today is the last day of trial A. I measured the plants again and found the averages. I also found the growth rate for each plant and the average growth rate for planting depth test group. Plant 0.5CA-16.2cm(6.375in), 0.5FA-21cm(8.25), 0.5GA-22.2cm(8.75in), 0.5IA-17.8cm(7in), 1FA-8.9cm(3.5in), 1HA-3.2cm (1.25in), 1JA-11.4cm(4.5in), 1.5AA-18.1cm(7.125in), 1.5DA-12.1cm(4.75in), 1.5JA-13cm(5.125in), 2AA-15.2cm(6in), 2BA-15.2cm(6in), 2CA-10.5cm(4.125in), 2HA-15.6cm(6.125in), 2.5BA-14.6cm(5.75in), 2.5EA-10.2cm(4in).	0.25
12/1/2017	**Using scientific inquiry, conducting investigation** I measured the growing plants again and found the averages of each plant groups heights. No more plants emerged today. Plant 0.5CA-13.3cm(5.25in), 0.5FA-18.4cm(7.25in), 19cm(7.5in), 0.5IA-15.9cm(6.25in), 1FA-6.7cm(2.625in), 1HA-2.9cm(1.125in), 1JA-10.2cm(4in), 1.5AA-16.5cm(6.5in), 1.5DA-10.5cm (4.125in), 1.5JA-11.4cm(4.5in), 2AA-13cm(5.125in), 2BA-12.7cm(5in), 2CA-9.5cm(3.75in), 2GA-13cm(5.125in), 2.5BA-12.7cm(5in), 2.5EA-8.3cm(3.25in).	0.08
11/30/2017	**Using scientific inquiry, conducting investigation** Again, no more plants emerged today. I measured the heights of the plants and found the averages of the heights for each planting depth again. Plant 0.5CA-11.7cm(4.625in), 0.5FA-15.6cm (6.125in), 0.5GA-17.1cm(6.75in), 0.5IA-14.6cm(5.75in), 1FA-4.4cm(1.75in), 1JA-7.6cm(3in), 1.5AA-14cm(5.5in), 1.5DA-7.9cm(3.125in), 1.5JA-8.9cm(3.5in), 2AA-10.5cm(4.125in), 2BA-10.2cm(4in), 2CA-7.3(2.875in), 2GA-10.8cm(4.25in), 2.5BA-10.2cm(4in), 2.5EA-6.4cm(2.5in).	0.08
11/29/2017	**Using scientific inquiry, conducting investigation** One more kernel emerged today. This kernel was planted at 2.5cm (1in). I measured all of the plants that are growing and found the averaged heighths for each planting depth. Plant 0.5CA-9.5cm(7.75in), 0.5FA-12.7cm(5in), 0.5GA-13.7cm(5.375in), 0.5IA-20cm(7.875in), 1FA-2.9cm(1.125in), 1HA-1.9cm(0.75in), 1JA-2.4cm(2.125in), 1.5AA-11.7cm(4.625in), 1.5DA-6cm(2.375in), 1.5JA-7cm(2.75in), 2AA-7.6cm(3in), 2BA-7.3cm (2.875in), 2CA-4.8cm(1.875in), 2GA-7.6cm(3in), 2.5BA-7.6cm(3in), 2.5EA-3.5cm(1.375in).	0.08

Journal - Experience-related Activity - AgriScience Fair

Date	Activity / Description	Hours
11/28/2017	**Using scientific inquiry, conducting investigation** Today no more corn has emerged, I think that they are pretty much done germinating. This means that only 15 out of the 50 kernels germinated, therefore the corn that I planted doesn't have a very high germination rate. I also watered the plants again with 50 milliliters of water. Plant 0.5CA-7.6cm(3in), 0.5FA-10.5cm(4.125in), 0.5GA-11.4cm(4.5in), 0.5IA-10.2cm(4in), 1FA-1.9cm(0.75in), 1JA-2.9cm(1.125in), 1.5AA-8.9cm(3.5in), 1.5DA-4.4cm(1.75in), 1.5JA-4.8cm(1.875in), 2AA-5.1cm(2in), 2BA-5.1cm(2in), 2CA-4.4cm(1.75in), 2GA-5.4cm(2.125in), 2.5BA-5.7cm(2.25in), 2.5EA-2.5cm(1in).	0.50
11/27/2017	**Using scientific inquiry, conducting investigation** Today 2 more plants emerged. One emerged that was planted at 2.5cm(1in) and another at 6.4cm(2.5in). The soil the corn is planted in is still very moist so I am not watering them again yet. Plant 0.5CA-2.7cm(2.25in), 0.5FA-8.6cm(3.375in), 0.5GA-8.9cm(3.5in), 0.5IA-8.6cm(3.375in), 1FA-0.6cm(0.25in), 1JA-4.4cm(1.75in), 1.5AA-7cm(2.75in), 1.5DA-3.2cm(1.25in), 1.5JA-3.2cm(1.25in), 2AA-3.5cm(1.375in), 2BA-3.8cm(1.5in), 2CA-2.9cm(1.125in), 2GA-4.1cm(1.625in), 2.5BA-4.1cm(1.625in), 2.5EA-1.3cm(0.5in).	0.08
11/26/2017	**Using scientific inquiry, conducting investigation** 4 more plants emerged today. 2 plants emerged that were planted at 3.8cm(1.5in) and two planted at 5cm(2in) emerged. I have continued to measure the heights of the plants every day, along with calculating the averages of the heights for each planting depth. Plant 0.5CA-5.7cm(2.25in), 0.5FA-6.7cm(2.625in), 0.5GA-6.4cm(2.5in), 0.5IA-6.4cm(2.5in), 1JA-1.9cm(0.75in), 1.5AA-4.4cm(1.75in), 1.5DA-1.6cm(0.625in), 1.5JA-1.6cm (0.625in), 2AA-1.9cm(0.75in), 2BA-2.2cm(0.875in), 2CA-2.2cm(0.875in), 2GA-2.5cm(1in), 2.5BA-2.5cm(1in).	0.08
11/25/2017	**Using scientific inquiry, conducting investigation** Today 6 more plants emerged. One is planted at a 1.3cm(0.5in) depth, one at 2.5cm(1in), one at 3.8cm(1.5in), two at 5cm(2in), and one at 6.4cm(2.5in). I also took the plastic covers off the plants in the morning. I then watered each plant with 30 milliliters of water. Plant 0.5CA-2.2cm(0.875in), 0.5FA-3.8cm(1.5in), 0.5GA-4.4cm(1.75in), 0.5IA-4.4cm(1.75in), 1JA-0.2cm(0.0625in), 1.5AA-2.2cm(0.875in), 2BA-0.2cm(0.0625in), 2CA-1cm (0.375in), 2.5BA-0.2cm(0.0625in)	0.50
11/24/2017	**Using scientific inquiry, conducting investigation** Today three plants have emerged. They are all from the 1.3cm(0.5in) planting depth. This does not surprise me because they are planted closest to the top. Plant 0.5FA-1.3cm(0.5in), 0.5GA-1.6cm(0.625in), 0.5IA-1.9cm(.75in)	0.08
11/23/2017	**Using scientific inquiry, conducting investigation** The still has not emerged and the soil is still moist, so I did not water the plants.	0.08
11/22/2017	**Using scientific inquiry, conducting investigation** The corn has still not emerged. I have not needed to water the plants again yet because the plastic covers on top keep in the moister.	0.03
11/21/2017	**Using scientific inquiry, conducting investigation** I measured my plants again today, none of them have emerged yet.	0.03
11/20/2017	**Using scientific inquiry, conducting investigation** None of the plants have emerged yet.	0.03
11/19/2017	**Design and conduct a scientific investigation.** Today I planted my corn kernels. I stared my labeling each pot by planting depth, plant number, and trial letter. I have ten plants for each planting depth and depths of 1.3cm(0.5in), 2.5cm(1in), 3.8cm (1.5in), 5cm(2in), and 6.4cm(2.5in). Then I filled each pot, which is three and a half inches deep and have a diameter of three and a half inches, with three and three-fourths ounces of soil. Then I marked on a pencil the planting depths and used that to push the kernels down to the correct depth. Finally, I watered each plant with 150 milliliters of water and covered them. There are also two 40 watt growing lights on the plants for 14 hours a day to simulate the sunlight during the summer time.	4.00
11/19/2017	**Using scientific inquiry, conducting investigation** I created a table to house my data on plant highths and growth rates. I created a row for all 50 plants and a row to calculate the averages of the plants for each depth every day. I created a column for each day that I am conducting the experiment, 14 days, and a column to record the plants' growth rates during that period.	0.50
11/5/2017	**Using scientific inquiry, conducting investigation** I did more research on my experiment topic and started to design my experiment. I looked at what my independent variable will be, my dependent variable, the control group, and constants. This way I will have a valid experiment and data collected from the experiment.	2.00
11/1/2017	**Using scientific inquiry, conducting investigation** I did research on my science fair project. My focus for that time was trying to figure out exactly what I was going to test and how I was going to do it, along with getting background information on my project.	1.00
	Total Entries: 48	**66.45**

Operating Expense - AgriScience Fair

Date	Vendor	Memo	Type	Amount
11/27/2017	Parents	2, 40 watt Grow Light	Supplies	$18.84
11/27/2017	Parents	1, Grow Light Hanger	Supplies	$26.76
11/27/2017	Parents	60, Planting Pots	Supplies	$16.50
11/27/2017	Parents	5, Planting Trays and Covers	Supplies	$19.20

Operating Income - AgriScience Fair

Date	Vendor	Memo	Type	Amount
11/27/2017	Sydney Masters		Research Funding	$18.84
11/27/2017	Sydney Masters		Research Funding	$26.76
11/27/2017	Sydney Masters		Research Funding	$16.50
11/27/2017	Sydney Masters		Research Funding	$19.20

Profit/Loss Report - AgriScience Fair			
Type	2017	2018	Total
1. Revenues from Operations			
Beginning Current Inventory		$0	
Market Inventory Adjustments			
Ending Current Inventory			
Change in Current Inventory			
Research Funding	$81		$81
Gross Cash Revenues	**$81**		**$81**
Gross Non-Cash Revenues			
Gross Revenues	**$81**		**$81**
2. Expenses from Operations			
Supplies	$81		$81
Contract/Custom			
Total Cash Expense	**$81**		**$81**
Non-Cash Contract/Custom			
Total Non-Cash Expense			
Total Operating Expense	**$81**		**$81**
3. Net Income from Operations	**$0**		**$0**
Journaled time (hours)	21.7	44.8	66.4