

Grading Scale:

- 16 points = Excellent
- 12-15 points = Good
- 8-11 points = Fair
- Below 8 = Needs Improvement

Cloze Activity Rubric (Formative Assessment)

Cloze Activity Rubric (Formative Assessment)

Criteria	Excellent (4 pts)	Good (3 pts)	Fair (2 pts)	Needs Improvement (1 pt)	Points
Completion	All blanks correctly filled.	1-2 blanks incorrect.	3-4 blanks incorrect.	5 or more blanks incorrect.	/4
Accuracy	All answers are accurate and show full understanding.	Most answers are correct and show understanding.	Some answers are correct, but several show confusion.	Many answers are incorrect, showing little understanding.	/4
Neatness/Legibility	Work is neat, legible, and easy to read.	Work is mostly neat and legible.	Work is somewhat difficult to read.	Work is difficult to read or messy.	/4
Effort	Shows excellent effort and attention to detail.	Shows good effort and attention to detail.	Some effort shown, but more detail needed.	Little effort shown.	/4
Total Points					/16

PowerPoint Presentation Rubric (Summative Assessment)

PowerPoint Presentation Rubric (Summative Assessment)

Criteria	Excellent (4 pts)	Good (3 pts)	Fair (2 pts)	Needs Improvement (1 pt)	Points
Content (Accuracy/Completeness)	All slides include complete, accurate information related to the project.	Most slides include accurate and relevant information.	Some slides are missing key details or contain inaccuracies.	Many slides lack important information or are inaccurate.	/4
Organization (Logical Flow)	Presentation is logically organized, easy to follow, and flows smoothly.	Presentation is mostly organized, with minor issues in flow.	Some sections are disorganized, making it harder to follow.	Presentation is poorly organized and difficult to follow.	/4
Design (Visual Appeal)	Visually engaging with effective use of images, color, and layout.	Design is visually appealing but could use more images or color balance.	Design is basic with limited images or creativity.	Design is plain, lacks visuals, or is cluttered.	/4
Presentation Skills (Delivery)	Speaks clearly, makes eye contact, and is confident.	Speaks clearly most of the time with some eye contact.	Speaks unclearly or lacks confidence at times.	Mumbles, rarely makes eye contact, or is difficult to hear.	/4
Total Points					/16

Cheat Sheet for the Combination Science or Engineering

Logbook and Research Paper:

In **APA**, only the headings are bolded. The content under each heading is regular text, double-spaced, and left-aligned. **In APA format**, each section of a paper typically **does not** require a separate page unless otherwise specified.

Here's a breakdown of how sections are generally arranged:

1. **Title Page**: Starts on its own page.
2. **Abstract**: Starts on a new page (if required).
3. **Main Body**: The sections of the main body (e.g., Introduction - Conclusion) are **continuous**, meaning they follow one another without starting new pages for each section.
4. **References**: Starts on a new page.

The following **are examples** of how you would format headings for your science fair project in APA style, using the appropriate bolding for each level:

Project Title

Student Name

School Name

Class & Grade

Date

Abstract

A brief summary of a research paper or project that outlines the key points, including the purpose, methods, results, and conclusions. It is typically 150-250 words long and helps readers quickly understand the main goals and findings of the work. The abstract is placed after the title page but before the introduction in an APA paper and serves as a concise overview of the entire project. The word "**Abstract**" should be centered and in bold, but the abstract text starts directly underneath without any punctuation after the title.

Table of Contents

- A list of all sections in the report with page numbers for easy reference

Introduction

- Background: Describe the experiment, including what it is and why you're investigating.
- Purpose: Explain what you aim to discover or prove through this experiment.
- Hypothesis: An educated guess or prediction that explains what you think will happen in an experiment. It should be something you can test through observation or experimentation.
- Testable Question: A clear question that can be answered through your experiment by hands-on investigation, measurement, or observation, focusing on what you're trying to find out or prove.

Schedule/Daily Notes

- A log of what was done each day, including any challenges, changes, notes, sketches, notes, or updates. Include an outline of the timeline for the project, including when each part of the experiment was conducted.

Background Research

- A section introducing the topic and explaining relevant studies or information related to the project.

Experimental Procedure/Method

- A detailed, step-by-step explanation of the materials required and how the experiment was conducted.

Data Collection

- Record all data, such as the number of attempts and successes, typically includes a graph to help the viewer visually see your results.

Observations/Results

- An analysis of the data collected, including any patterns observed and final results.

Conclusion

- A summary of the findings, whether the hypothesis was supported or refuted, and suggestions for next steps or further experiments.

References

- A hanging indented alphabetical list of all references cited in APA format, including any personal instruction, interviews, books, articles, or online sources.

The following example illustrates how to follow the structure
to create your FINAL project

1. Title Page:

Saving Fred: A Gummy Worm Rescue Challenge

Your Name

Your School

Your Class and Grade

Date

Abstract

The Saving Fred project aimed to investigate problem-solving techniques using simple tools. Fred, a gummy worm, needed to be rescued by placing him into his life preserver (a gummy ring) without direct contact, using only paper clips. Through multiple trials, students tested their hypothesis that Fred could be successfully saved using strategic methods. The results showed that Fred was saved in 3 out of 5 trials, with the most effective strategy being to move the life preserver first, then maneuver Fred into it. This project demonstrated the importance of teamwork and creative problem-solving.

Table of Contents

1. Introduction – Page 1
2. Schedule/Daily Notes – Pages 1 -2
3. Background Research – Page 2
4. Experimental Procedure/Method – Page 2
5. Materials – Page 2
6. Data Collection – Page 3
7. Observations/Results – Page 4
8. Conclusion – Page 4
9. References – Page 5

Introduction

The "Saving Fred" experiment challenges students to rescue Fred, a gummy worm, by placing him in his life preserver (a gummy ring) without directly touching him, using only paper clips. This task simulates teamwork and problem-solving with limited resources, much like real-world engineering challenges (Mucci, J. W. (2024).

The goal is to investigate problem-solving techniques and fine motor skills, using simple tools to achieve a task.

We predict that Fred can be successfully saved using two paper clips to maneuver the life preserver and Fred.

Can we successfully place Fred in his life preserver using only two paper clips without touching him directly?

Schedule/Daily Notes

Day 1: Today I learned about the "Saving Fred" challenge and how this could serve as my Science/Engineering Fair project. The goal is to work with a partner and use two paper clips to move Fred (a gummy worm) into his life preserver (a gummy ring) without touching him directly.

Day 2: I conducted five trials of Saving Fred. It was difficult to move the life preserver and Fred at the same time. Fred fell off the cup twice.

I tried a new method of moving Fred by placing the life preserver first, and it worked much better. Fred stayed on the cup while the ring was moved underneath him.

I reviewed my results and noted that Fred was saved in 3 out of 5 trials.

Days 3-5: Prepared my logbook/research paper, conclusion, and presentation materials, finalized all reporting, and completed the presentation.

Background Research

In this project, we are testing problem-solving skills using tools. According to studies, using simple tools helps people solve complex tasks (Brown, 2020). Teamwork and collaboration are important in solving challenges like this one (Smith, 2019). Problem-solving with tools is a crucial skill because it mirrors real-world challenges where people cannot directly touch or move objects and must use creativity to succeed.

Experimental Procedure/Method

1. Place Fred (the gummy worm) on top of the overturned plastic cup, representing his boat.
2. Place the gummy ring (life preserver) on the table under the cup.
3. Use two paper clips to move the life preserver and place it under Fred.
4. Once the life preserver is in place, use the paper clips to move Fred into the ring without touching him directly.
5. Repeat the experiment 5 times, recording how often Fred is successfully saved.

Materials

Two paperclips, a plastic cup, a gummy ring, and a gummy worm.

Data Collection

Trial 1: Fred fell off the cup before he could be moved into the life preserver.

Trial 2: Fred was successfully moved into the life preserver.

Trial 3: Fred was saved, but it took multiple attempts to move the ring under him.

Trial 4: Fred fell again before being saved.

Trial 5: Fred was successfully moved into the life preserver in one attempt.

Table 1

Saving Fred Trials

Trial	Success (Yes or No)	Notes:
1	Y	Fred fell off the cup before he could be moved into the life preserver
2	Y	Fred fell off the paper clips repeatedly before being saved
3	Y	It took multiple attempts to move the ring onto Fred
4	Y	Fred fell repeatedly before being saved
5	Y	Fred was saved on the first attempt

Observations/Results

In the first and fourth trials, Fred fell before he could be moved into the life preserver. The process of placing the ring under Fred was the most challenging part of the experiment. However, in the second, third, and fifth trials, Fred was successfully moved into the life preserver using the two paper clips. It seems that moving the ring first, then moving Fred, was the most effective strategy.

Conclusion

The hypothesis that Fred could be saved using two paper clips was supported by the results. Fred was successfully saved in 3 out of 5 trials. The method of moving the life preserver first, then Fred, proved to be the most effective. This project demonstrates how problem-solving with simple tools can lead to success when a good strategy is in place.

References

Brown, T. (2020). The Science of Tools and Problem-Solving. Retrieved from www.scienceofproblemsolving.com.

Mucci, J. W. (2024). Personal instruction on the "Saving Fred" project. Burns Science and Technology School, Oak Hill, FL.

Smith, J. (2019). Collaboration and Teamwork in Problem-Solving. *Journal of Education*, 45(3), 23–29.

Formative Grade: Saving Fred Cloze Activity Worksheet

Directions: Fill in the blanks using your knowledge of the "Saving Fred" project.

1. Title Page

Project Title: Saving Fred: A Gummy Worm Rescue Challenge

Student Name: _____

School Name: _____

Class & Grade: S.T.E.A.M. 8th Grade _____

Date: _____

2. Abstract

The Saving Fred project aimed to investigate _____ techniques using simple tools. Fred, a gummy worm, needed to be rescued by placing him into his life preserver (a gummy ring) without direct contact, using only paper clips. Through multiple trials, students tested their hypothesis that Fred could be successfully saved using strategic methods. The results showed that Fred was saved in 3 out of 5 trials, with the most effective strategy being to move the life preserver first, then maneuver Fred into it. This project demonstrated the importance of teamwork and _____.

3. Table of Contents

Introduction – Page _____

Schedule/Daily Notes – Pages 1 -2

Background Research – Page 2

Experimental Procedure/Method – Page 2

Materials – _____

Data Collection – Page 3

Observations/Results – Page 4

Conclusion – _____

References – Page 5

4. Schedule/Daily Notes

Day 1: Today I learned about the "Saving Fred" challenge. The goal is to use two _____ to move Fred (a gummy worm) into his life preserver (a _____) without touching him directly.

Day 2: I conducted the first round of trials. It was difficult to move the _____ and Fred at the same time. Fred fell off the _____ twice.

Days 3-5: I reviewed my results and noted that Fred was saved in ____ out of ____ trials, and I started preparing the report and presentation.

5. Background Research

In this project, we are testing _____ skills using tools. According to studies, using simple tools helps people solve complex tasks (Brown, 2020). Teamwork and collaboration are important in solving challenges like this one (Smith, 2019).

6. Experimental Procedure/Method

Place Fred (the gummy worm) on top of the overturned _____, representing his boat.

Place the gummy _____ (life preserver) on the table under the cup.

Use two _____ to move the life preserver and place it under Fred.

Once the life preserver is in place, use the paper clips to move Fred into the ring without touching him directly.

Repeat the experiment ____ times, recording how often Fred is successfully saved.

Materials

Two paperclips, a plastic cup, a gummy ring, and a gummy worm.

7. Data Collection

Trial 1: Fred fell off the cup before he could be moved into the life preserver.

Trial 2: Fred was _____ moved into the life preserver.

Trial 3: Fred _____ again before being saved.

Trial 4: _____

Trial 5: Fred was saved on the first attempt.

8. Observations/Results

In the first and third trials, Fred _____ before he could be moved into the life preserver. The process of placing the _____ under Fred was the most challenging part of the experiment. However, in the second, fourth, and fifth trials, Fred was successfully moved into the life preserver using the two paper clips.

9. Conclusion

The hypothesis that Fred could be saved using two paper clips was supported by the results. Fred was successfully saved in _____ out of _____ trials. This project shows how using simple tools can lead to success when a good strategy is in place.

10. References

Brown, T. (______). The Science of Tools and Problem-Solving. Retrieved from www.scienceofproblemsolving.com.

Mucci, J. W. (2024). Personal instruction on the "_____"
project. Burns Science and Technology School, Oak Hill, FL.

Smith, J. (2019). Collaboration and _____ in Problem-Solving. *Journal of Education*, 45(3), 23 – 29.

YOUR 8th Grade SCIENCE FAIR PROJECT!!!!:

Here's how **you** will design each slide for your **summative grade** science fair project:

Title Slide

Title: "Fortune Teller Fish Science Experiment"

Fields: Student Name, Class & Grade, Date

Design: Use a clean background with subtle science icons (e.g., molecules, gears, test tubes, an image of a Fortune Fish) or simple patterns. Ensure the text is centered with a large, easy-to-read font.

Abstract Slide

Title: "Abstract" (centered and bold)

Content: Leave space for a brief summary of the project, including Purpose, Methods, Results, and Conclusion.

Design: Minimalist, with the text box below the title.

Table of Contents Slide

Title: "Table of Contents" (centered and bold)

Sections: Introduction, Schedule/Daily Notes, Background Research, Experimental Procedure, Data Collection, Observations/Results, Conclusion, References

Design: List format with a clean layout and simple section titles.

Introduction Slide

Title: "Introduction" (bold and centered)

Subsections: Background, Purpose, Hypothesis, Testable Question

Design: Use bullet points to briefly outline each subsection. Optionally, include a small visual, like a Fortune Teller Fish or a scientific icon.

Schedule/Daily Notes Slide

Title: "Schedule/Daily Notes" (centered and bold)

Content: Leave space for a log of daily activities, challenges, and changes during the experiment.

Design: May use a table or a timeline graphic to help visualize the timeline.

Background Research Slide

Title: "Background Research" (centered and bold)

Content: Summarize important studies and related information.

Design: Simple layout with space for images or references if needed.

Experimental Procedure/Method Slide

Title: "Method" (centered and bold)

Subsections: Materials, Step-by-step procedure

Design: Use a straightforward list of materials and detailed steps for the procedure.

Data Collection Slide

Title: "Data Collection" (centered and bold)

Table: Create a table to show the trials and observations.

Design: Insert a simple table with room for data from each trial.

Observations/Results Slide

Title: "Observations/Results" (centered and bold)

Content: Summarize the findings with space for graphs or charts.

Design: Include placeholders for visuals that represent the data collected.

Conclusion Slide

Title: "Conclusion" (centered and bold)

Content: Summarize whether the hypothesis was supported or refuted and any potential next steps.

References Slide

Title: "References" (centered and bold)

Content: List your references in APA format.