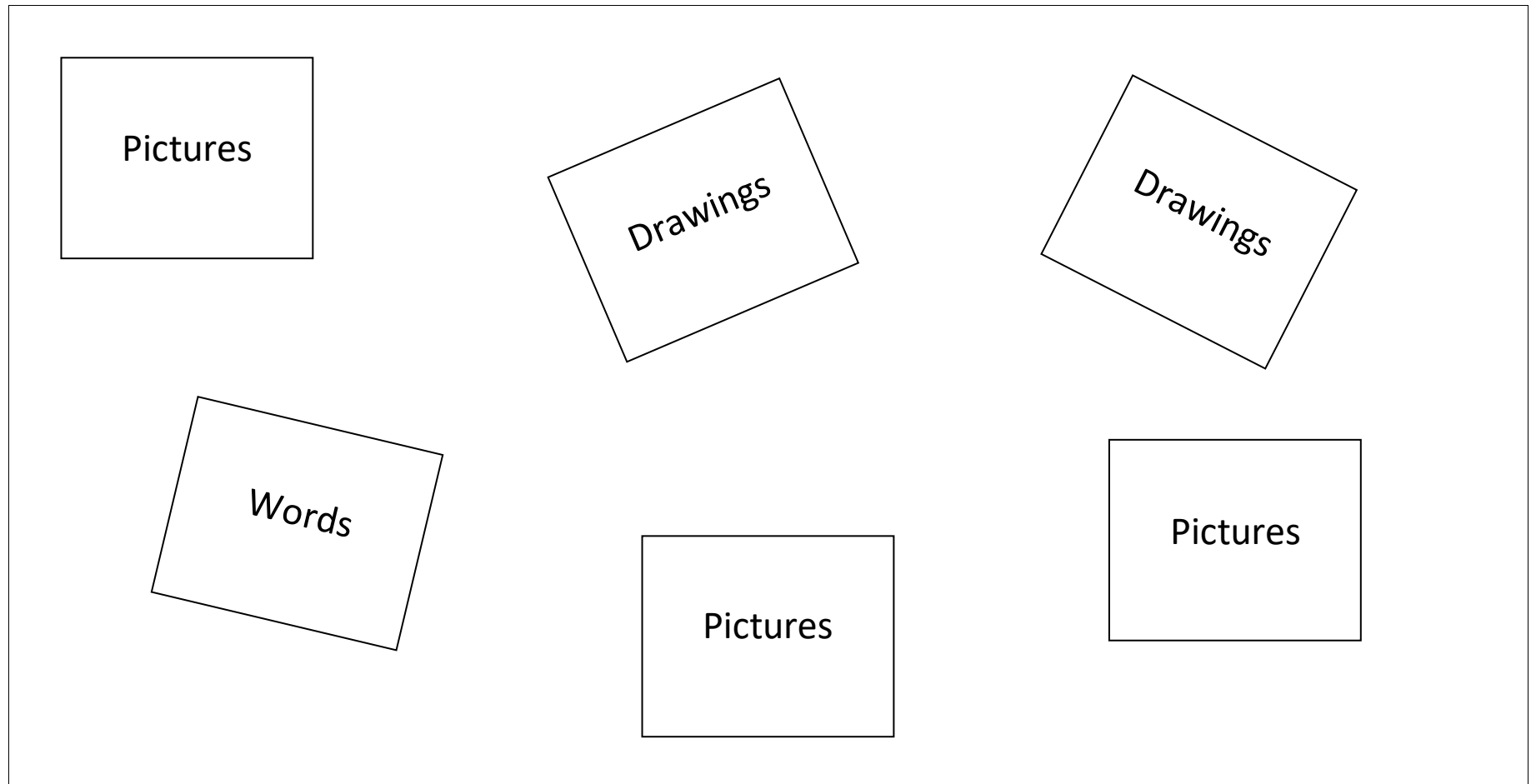


Title Page

Group Member Names

Science 8 Block: _____

Teacher: _____



Title Page

Group Member Names

Science 8 Block: _____

Teacher: _____

Part A: Camera Construction (10 marks)

	1-2	3-4	5
Quality of construction and use of materials	Poorly made, flimsy, inappropriate choice of materials, easily falls apart		Excellent construction, good function/operation. A wise, creative use of materials
Success of device to demonstrate desired goal	Camera was not successful at taking photographs - one photo is included		Camera was successful at taking a minimum of three types of photographs

Part A: Camera Construction (10 marks)

	1-2	3-4	5
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Success of device to demonstrate desired goal	Camera was not successful at taking photographs - one photo is included		Camera was successful at taking a minimum of three types of photographs

Page 1: Researching the Camera

Due: _____

Parts of a Camera	The Pinhole Camera
<p data-bbox="205 574 806 646">What are the main parts of a camera? What are the functions of each of these parts?</p>	<p data-bbox="890 516 1940 587">Provide a labelled diagram of how the pinhole camera works. You must draw this diagram not print one from the internet. Be sure to use a ruler when necessary.</p> <p data-bbox="1024 711 1806 743">Write a few sentences to describe what a pinhole camera is.</p>

1. What is the function of the pinhole?
2. Why do we have to spray the inside of the container black?
3. When the picture is taken, is it upside down or right side up on the photo paper that you have inserted into your camera? Why?
4. Why does a pinhole camera not need a lens?
5. Does the diameter of the can matter when taking a picture? Why or Why not?

Page 1: Researching the Camera

Due: _____

Parts of a Camera	The Pinhole Camera
<p data-bbox="205 573 808 646">What are the main parts of a camera? What are the functions of each of these parts?</p>	<p data-bbox="888 516 1938 589">Provide a labelled diagram of how the pinhole camera works. You must draw this diagram not print one from the internet. Be sure to use a ruler when necessary.</p> <p data-bbox="1024 711 1801 743">Write a few sentences to describe what a pinhole camera is.</p>

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4. Why does a pinhole camera not need a lens?
5. Does the diameter of the can matter when taking a picture? Why or Why not?

Part B: Camera Research (15 marks)

	1-2	3-4	5
Diagram of Camera	The diagram of the camera is inaccurate or incomplete.		The diagram of the camera is accurate, complete and of high quality. A ruler was used when necessary.
	1-4	5-7	8-10
Questions answered and completed. Each question is worth two marks. Please ensure you include sufficient detail for each question to achieve full marks.	Explanations regarding the five questions about how pinhole cameras work are not completed, are inaccurate or are lacking detail.		The function of the pinhole was well-explained (2). The reasoning to spray the inside of the camera black was well- detailed (2). Explanation of the photo (inverted or not) was thorough (2). Explanation of why a lens is not needed is clear (2). Explanation of the diameter of the can is thorough and complete (2).

Part B: Camera Research (15 marks)

	1-2	3-4	5
Diagram of Camera	The diagram of the camera is inaccurate or incomplete.		The diagram of the camera is accurate, complete and of high quality. A ruler was used when necessary.
	1-4	5-7	8-10
Questions answered and completed. Each question is worth two marks. Please ensure you include sufficient detail for each question to achieve full marks.	Explanations regarding the five questions about how pinhole cameras work are not completed, are inaccurate or are lacking detail.		The function of the pinhole was well-explained (2). The reasoning to spray the inside of the camera black was well- detailed (2). Explanation of the photo (inverted or not) was thorough (2). Explanation of why a lens is not needed is clear (2). Explanation of the diameter of the can is thorough and complete (2).

Page 2: What is exposure?

Due: _____

Title	Title	Title	Title
Photo 1 Original form	Photo 1 Inverted form	Photo 2 Same scene/object as Photo 1 All variables kept the same except exposure.	Photo 2 Inverted form

1. Identify two differences between your photos.
2. Why do you think these differences occurred?
3. What does “exposure time” mean?
4. What would happen to exposure time and image quality if you decreased the size of the pinhole?

Summary sentence: In one sentence explain the connection between exposure time and picture quality.

Page 2: What is exposure?

Due: _____

Title	Title	Title	Title
Photo 1 Original form	Photo 1 Inverted form	Photo 2 Same scene/object as Photo 1 All variables kept the same except exposure.	Photo 2 Inverted form

1. Identify two differences between your photos.
2. Why do you think these differences occurred?
3. What does “exposure time” mean?
4. What would happen to exposure time and image quality if you decreased the size of the pinhole?

Summary sentence: In one sentence explain the connection between exposure time and picture quality.

Exposure			
	1-2	3-4	5
Photos Comparing Different Exposure Times	Photos comparing different exposure may be missing		Photos comparing different exposures are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about exposure time and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about exposure time and how it affects image quality are complete, accurate and well-detailed.

Exposure			
	1-2	3-4	5
Photos Comparing Different Exposure Times	Photos comparing different exposure may be missing		Photos comparing different exposures are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about exposure time and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about exposure time and how it affects image quality are complete, accurate and well-detailed.

Page 3: Light Levels

Due: _____

Title	Title	Title	Title
Photo 1 Original form	Photo 1 Inverted form	Photo 2 Same scene/object as Photo 1 All variables kept the same except light levels.	Photo 2 Inverted form

1. What is the Vernier Light sensor measuring?
2. What unit does the Vernier Light sensor use? Provide some information about the unit.
3. What do you notice about the readings from the Vernier sensor and the image quality?

Summary sentence: In one sentence explain the relationship between light levels and picture quality.

Page 3: Light Levels

Due: _____

Title	Title	Title	Title
Photo 1 Original form	Photo 1 Inverted form	Photo 2 Same scene/object as Photo 1 All variables kept the same except light levels.	Photo 2 Inverted form

1. What is the Vernier Light sensor measuring?
2. What unit does the Vernier Light sensor use? Provide some information about the unit.
3. What do you notice about the readings from the Vernier sensor and the image quality?

Summary sentence: In one sentence explain the relationship between light levels and picture quality.

Light Levels			
	1-2	3-4	5
Photos Comparing Different Light Levels	Photos comparing different light levels may be missing		Photos comparing different light levels are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about different light levels and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about different light levels and how it affects image quality are complete, accurate and well-detailed.

Light Levels			
	1-2	3-4	5
Photos Comparing Different Light Levels	Photos comparing different light levels may be missing		Photos comparing different light levels are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about different light levels and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about different light levels and how it affects image quality are complete, accurate and well-detailed.

Page 4: Indoor vs. Outdoor

Due: _____

Title	Title	Title	Title
Photo 1 Original form A picture taken indoors	Photo 1 Inverted form	Photo 2 Original form A picture taken outdoors	Photo 2 Inverted form

1. Research recommended exposure times for different conditions (ex. Outdoor - bright sunlight, overcast, etc. Indoor)
2. Identify two differences between your photos.
3. Which condition needs a longer exposure time? Why?
4. Research two reasons for these differences.

Summary sentence: In one sentence explain the relationship between light conditions and picture quality.

Page 4: Indoor vs. Outdoor

Due: _____

Title	Title	Title	Title
Photo 1 Original form A picture taken indoors	Photo 1 Inverted form	Photo 2 Original form A picture taken outdoors	Photo 2 Inverted form

1. Research recommended exposure times for different conditions (ex. Outdoor - bright sunlight, overcast, etc. Indoor)
2. Identify two differences between your photos.
3. Which condition needs a longer exposure time? Why?
4. Research two reasons for these differences.

Summary sentence: In one sentence explain the relationship between light conditions and picture quality.

Indoor vs. Outdoor			
	1-2	3-4	5
Photos Comparing Indoor and Outdoor Conditions	Photos comparing indoor and outdoor lighting may be missing		Photos comparing indoor and outdoor lighting are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about indoor and outdoor lighting and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about indoor and outdoor lighting and how it affects image quality are complete, accurate and well-detailed.

Indoor vs. Outdoor			
	1-2	3-4	5
Photos Comparing Indoor and Outdoor Conditions	Photos comparing indoor and outdoor lighting may be missing		Photos comparing indoor and outdoor lighting are present in their original and their inverted form.
	1-4	5-7	8-10
Questions answered and completed.	Explanations regarding the questions about indoor and outdoor lighting and how it affects the image quality are not completed, are inaccurate or are lacking detail.		Explanations regarding the questions about indoor and outdoor lighting and how it affects image quality are complete, accurate and well-detailed.

Page 5: Final Photos and Project Summary
Due: _____

Title	Title
<p>Photo 1</p> <p>Original form</p> <p>This is the best photo from your project. It should be creative and fun!</p>	<p>Photo 1</p> <p>Inverted form</p>
<p>Justify your choice of specifications for this photo. You must talk about all the variables mentioned in this project (ie. Exposure time, light conditions etc.) and why you set them the way you did to achieve the best picture.</p>	

1. What is the most important thing you learned?
2. How successful was your group at taking photos?
3. What would you do differently next time?

Page 5: Final Photos and Project Summary

Due: _____

Title	Title
<p>Photo 1</p> <p>Original form</p> <p>This is the best photo from your project. It should be creative and fun!</p>	<p>Photo 1</p> <p>Inverted form</p>
<p>Justify your choice of specifications for this photo. You must talk about all the variables mentioned in this project (ie. Exposure time, light conditions etc.) and why you set them the way you did to achieve the best picture.</p>	

1. What is the most important thing you learned?
2. How successful was your group at taking photos?
3. What would you do differently next time?

Part D: Final Photo & Project Summary (15 marks)

	1-2	3-4	5
Final Photo	Final photo is missing.		Final photo demonstrates an understanding of the effects of exposure time, light conditions and indoor and outdoor lighting. Photo is creative.
Final Photo Questions	Justification regarding what exposure time was used based on lighting conditions and location of where photo was taken (indoor or outdoor) is missing, inaccurate or lacking detail.		Justification regarding what exposure time was used based on lighting conditions and location of where photo was taken (indoor or outdoor) is complete, accurate and well-detailed.
Project Summary Questions (Conclusion)	Project summary is lacking depth of thought and accuracy when answering the three questions		Project summary demonstrates depth of thought and accuracy when answering the three questions.

Part D: Final Photo & Project Summary (15 marks)

	1-2	3-4	5
Final Photo	Final photo is missing.		Final photo demonstrates an understanding of the effects of exposure time, light conditions and indoor and outdoor lighting. Photo is creative.
Final Photo Questions	Justification regarding what exposure time was used based on lighting conditions and location of where photo was taken (indoor or outdoor) is missing, inaccurate or lacking detail.		Justification regarding what exposure time was used based on lighting conditions and location of where photo was taken (indoor or outdoor) is complete, accurate and well-detailed.
Project Summary Questions (Conclusion)	Project summary is lacking depth of thought and accuracy when answering the three questions		Project summary demonstrates depth of thought and accuracy when answering the three questions.

Page 6: References

Due: _____

Full APA style reference for your sources. At least one reference is provided for exposure, light levels and indoor/outdoor conditions.

Page 6: References

Due: _____

Full APA style reference for your sources. At least one reference is provided for exposure, light levels and indoor/outdoor conditions.

Part E: References (5 marks)

	1-2	3-4	5
References	References are not in APA format or incomplete. At least one reference is given.		Full APA style reference for your sources. At least one reference is provided for exposure, light levels and indoor/outdoor conditions.

Part F: Group Collaboration (10 marks)

	1-4	5-7	8-10
Group Collaboration	Group did not work well together when building the camera, taking pictures, researching and completing write-up for each section		Group collaborated well. Each individual took part and played an equal role in building the camera, taking pictures and the written components for each section.

Part E: References (5 marks)

	1-2	3-4	5
References	References are not in APA format or incomplete. At least one reference is given.		Full APA style reference for your sources. At least one reference is provided for exposure, light levels and indoor/outdoor conditions.

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