**Shapes Activity**

Directions: For each shape you are to choose which project to do(the square will be assigned). Each project that is chosen should be cut out and taped, or glued into these shapes. Once you choose which project to do, you will be given a task card for more specific instructions. Remember to follow the rubric for each of your projects.

In a discussion, determine how you would use parabolas as a sports castor or an architect.

In an editorial, determine where parabolas can be found in the world and the purpose that they serve in your example.

Make a skit on what a linear function does on a graph as compared to what a quadratic function does on a graph. Describe the differences and similarities between the two.

In a rap/song (lyrics must be included) compare and contrast linear equations to quadratic equations. How can you tell the difference between them by looking at the graph?

Write a poem comparing and contrasting linear functions to quadratic functions. How can you tell the difference between them when looking at a graph?

In a comic strip, determine where parabolas can be found in the world, as well as the purpose that your example serves.

Pixton.com

(bitstrips.com)

Experiment: Create a lab/experiment that your classmates can conduct that will provide them with a parabolic graph in the end. Provide the procedure to the experiment as well as follow up questions.

Lab: take something that you know has a parabolic movement. Create the shape and measure the distance between the start and end point. Find the equation of the parabola, as well as the point of maximum and minimum using the equation found. Be sure to state how your max or min point could be incorrect.

In an essay, investigate something with parabolic shape. Use this shape and formulate the equation. Also, using the equation that you formulated, find the point of maximum or minimum. Be sure to state how your max or min point could be in correct.

Create a board game or a computer game that could teach this topic to an eighth grade student. Be sure to include the directions, and all pieces. This game can over all the topics or just one.

**Parabolic Motion**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- |
| **Category** | **4** | **3** | **2** | **1** |
| **Data** | Professional looking and accurate representation of the data in tables and/or tables are labeled and titled | Accurate representation of the data in tables and/or graphs. Graphs and tables are labeled and titled. | Accurate representations of the data in written form, but no graphs or tables are presented. | Data are not shown OR are inaccurate. |
| **Materials** | All materials and setup used in the experiment are clearly and accurately described. | Almost all materials and the setup used in the experiment are clearly and accurately described. | Most of the materials and the setup used in the experiment are accurately described. | Many materials are described inaccurately OR are not described at all. |
| **Analysis** | The relationship between the variables is discussed and trends/patterns logically analyzed. Predictions are made about what might happen if part of the lab were changed or how the experimental design could be changed. | The relationship between the variables is discussed and trends/patterns logically analyzed. | The relationship between the variables is discussed but no patterns | The relationship between the variables is not discussed. |
| **Error Analysis** | Experimental errors,, their possible effects, and ways to reduce errors are discussed. | Experimental errors and their possible effects are discussed. | Experimental errors are mentioned. | There is no discussion of errors. |
| **Drawings/ Diagrams** | Clear, accurate diagrams are included and make the experiment easier to understand. Diagrams are labeled neatly and accurately. | Diagrams are included and are labeled neatly and accurately. | Diagrams are included and are labeled. | Needed diagrams are missing OR are missing important labels. |
| **Conclusion** | Conclusion includes whether the findings supported the hypothesis, possible sources of error, and what was learned from the experiment. | Conclusion includes whether the findings supported the hypothesis and what was learned from the experiment. | Conclusion includes what was learned from the experiment. | No conclusion was included in the report OR shows little effort and reflection |

**Making A Game: Graphing Quadratic Equations**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- |
| **Category** | **4** | **3** | **2** | **1** |
| **Accuracy of Content** | All information cards made for the game are correct. | All but one of the information cards made for the game are correct. | All but two of the information cards made for the game are correct. | Several information cards made for the game are not correct. |
| **Rules** | Rules were written clearly enough that all could easily participate. | Rules were written, but on part of the game needed slightly more explanation. | Rules were written, but people had some difficulty figuring out the game. | The rules were not written. |
| **Knowledge Gained** | All students in group could easily and correctly state several facts about the topic used for the game without looking at the game. | All students in the group could easily and correctly state 1-2 facts about the topic used for game without looking at the game. | Most students in the group could easily and correctly state 1-2 facts about the topic used for the game without looking at the game. | Several students in the group could NOT correctly state facts about the topic used for the game without looking at the game. |
| **Creativity** | The group put a lot of thought into making the game interesting and fun to play as shown by creative questions, game pieces and/or game board. | The group put some thought into making the game interesting and fun to play by using textures, fancy writing, and/or interesting characters. | The group tried to make the game interesting and fun, but some of the things made it harder to understand/enjoy the game. | Little thought was put into making the game interesting or fun. |

**Compare and Contrast Linear vs. Quadratic**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **1** | **2** | **3** | **4** |
| **Accuracy of Facts (Content)** | All supportive facts are reported accurately. | Almost all supportive facts are reported accurately. | Most supportive facts are reported accurately. | NO facts are reported OR most are inaccurately reported. |
| **Focus on Topic (Content)** | There is one clear, well-focused topic. Main idea stands out and is supported by detailed information. | Main idea is clear but the supporting information is general. | Main idea is somewhat clear but there is a need for more supporting information. | The main idea is not clear. There is a seemingly random collection of information. |
| **Support for Topic (Content)** | Relevant, telling, quality details give the reader important information that goes beyond obvious and predictable. | Supporting details and information are relevant, but one key issue or portion of the storyline is unsupported. | Supporting details and information are relevant, but several key issues or portions of the storyline are unsupported. | Supporting details and information are typically unclear or not related to topic. |
| **Sources (Content)** | All sources used for quotes and facts are credible and cited correctly. | All sources used for quotes and facts are credible and most are cited correctly. | Most sources used for quotes and facts are credible and cited correctly. | Many sources used for quotes and facts are less than credible (suspect) and/or are not cited correctly. |
| **Conclusion (Organization)** | The conclusion is strong and leaves the reader with a feeling that they understand what the writer is “getting at.” | The conclusion is recognizable and ties up almost all the loose ends. | The conclusion is recognizable, but does not tie up several loose ends. | There is no clear conclusion, the paper just ends. |

**Where are Quadratics found in the Real World?**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **4** | **3** | **2** | **1** |
| **Content Accuracy** | Contains at least 5 accurate facts about the topic. | Contains 3-4 accurate facts about the topic. | Contains 1-2 accurate facts about the topic. | Contains no accurate facts about the topic |
| **Neatness** | Typed, clean, not wrinkled, and is easy to read with no distracting error corrections. It was done with pride. | Neatly hand-written, clean, not wrinkled, and is easy to read with no distracting error corrections. It was done with care. | Typed and is crumpled or slightly stained. It may have 1-2 distracting error corrections. It was done with some care. | Typed and looks like it had been shoved in a pocket or locker. It may have several distracting error corrections. It looks like it was done in a hurry and stored inappropriately. |
| **Ideas** | Ideas were expressed in a clear and organized fashion. It was easy to figure out what the letter was about. | Ideas were expressed in a pretty clear manner, but the organization could have been better. | Ideas were somewhat organized, but were not very clear. It took more than one reading to figure out what the letter was about. | The letter seemed to be a collection of unrelated sentences. It was very difficult to figure out what the letter was about. |
| **Grammar & Spelling (conventions)** | Writer makes no errors in grammar or spelling. | Writer makes 1-2 errors in grammar and/or spelling. | Writer makes 3-4 errors in grammar and/or spelling. | Writer makes more than 4 errors in grammar and/or spelling. |
| **Salutation and Closing** | Closing has no errors in capitalization and punctuation. | Closing has 1-2 errors in capitalization and punctuation. | Closing has 3 or 4 errors in capitalization and punctuation. | Closing is missing. |