

ELEMENT BALL

Originally presented by:

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A phenomenal activity to get the students involved in research and creativity involves the creation of an element ball. This is an icosahedron (20-sided) figure filled with various facts. These facts can involve various elements, scientists, or common chemical substances. The student researches and collects information on the topic they are presenting. They then assemble the figure with the 20 sides filled with various information on the selected topic. You may use your creativity in the construction of this icosahedron.

PURPOSE: To produce an icosahedron (20-sided structure) showing information on 19 of the 20 sides about one of the following:
Element or Scientist or Common Chemical Substance

MATERIALS: Construction paper or card stock, stapler or glue, markers, pens, crayons and the researched material on one of the above three topics.

PROCEDURE:

1. Using the circle pattern, cut 20 circles from pieces of construction paper or card stock.
2. Using the triangle pattern, trace the triangle inside the circle
3. Inside 10 of the triangles write a piece of information or a property on your selection. Decorate the circles or triangles marking them as colorful as you can. Be sure all written information is INSIDE the triangle area. Write your name, period and topic on the remaining triangle.
4. Begin assembly of the element ball by folding up (or down??) the curved sides extending beyond the triangle on all 20 of the circles (**FIGURE 1**).
5. Select 5 of the triangles and place them in a circle with the top points of the triangle toward the center, like pieces of a sliced pie (**FIGURE 2**).
6. Staple or glue the curved, upright edges at the creases. It should resemble a hat once stapled or glued. This is the top of the ball.
7. Repeat steps 5 and 6 to make the bottom of the ball.
8. To make the center of the ball, take the remaining 10 triangles and place them in a straight row, with alternating points up and points down. Staple or glue these at the creases (**FIGURE 3**).
9. Bring the ends of the row of triangles together and staple or glue the two end creases together to form a ring of ten triangles.
10. Set the ring up on a table and place the top (**STEP 3**) on the ring matching up the curved tabs. Staple or glue at the creases.
11. Turn the assembly over and attach the bottom in a similar fashion.
12. Punch one hole in one tab and tie a piece of string or yarn about 12 inches long.

CHEMISTRY PROMOTIONAL PROJECT

OUTCOME: The students will create a project that acts as a promotional or informative device for future chemistry students.

TASK: You are asked to create a promotional device that **POSITIVELY** promotes or informs a person on a particular topic of chemistry.

You will be graded on the project using the following rubric.

TIME/ EFFORT	Score of 1	Score of 2	Score of 3	
	Minimal time and effort spent on preparation of project. Sloppiness apparent in various aspects of project. Overall appearance not acceptable.	Adequate time and effort spent on preparation of the project. Some degree of sloppiness apparent. Overall appearance is acceptable.	Project is extremely neat. Much effort spent on the appearance of the project. Attractive and organized	X 3
INFORMATION				
	Chemistry references or information mainly inaccurate.	Chemistry references or information in project has minor errors or mistakes.	Chemistry references or information in project totally accurate. NO MISTAKES.	X 3
CREATIVITY/ ORIGINALITY				
	Project lacks creativity and originality. Inadequate thought behind the project.	Project shows some signs of creativity or originality.	Project is very creative and original. Relationship between chemistry and project is outstanding and clear. Unique approach to project.	X 2
POSITIVE IMPACT				
	Inappropriate choice for project or design. Chemistry appears to have a negative image.	Impact appears to be neutral. No overwhelming desire to view chemistry in a positive or negative image.	Project portrays chemistry in a very favorable light. Overwhelming desire to connect chemistry with positive image.	X 2

CHEMISTRY

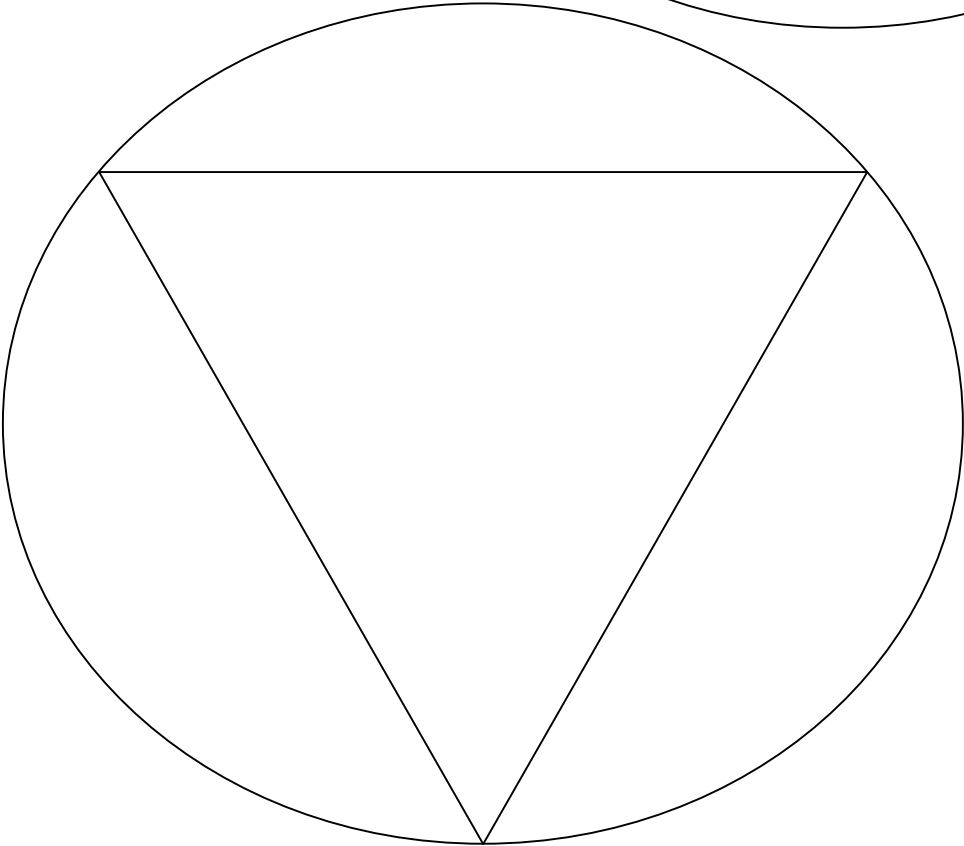
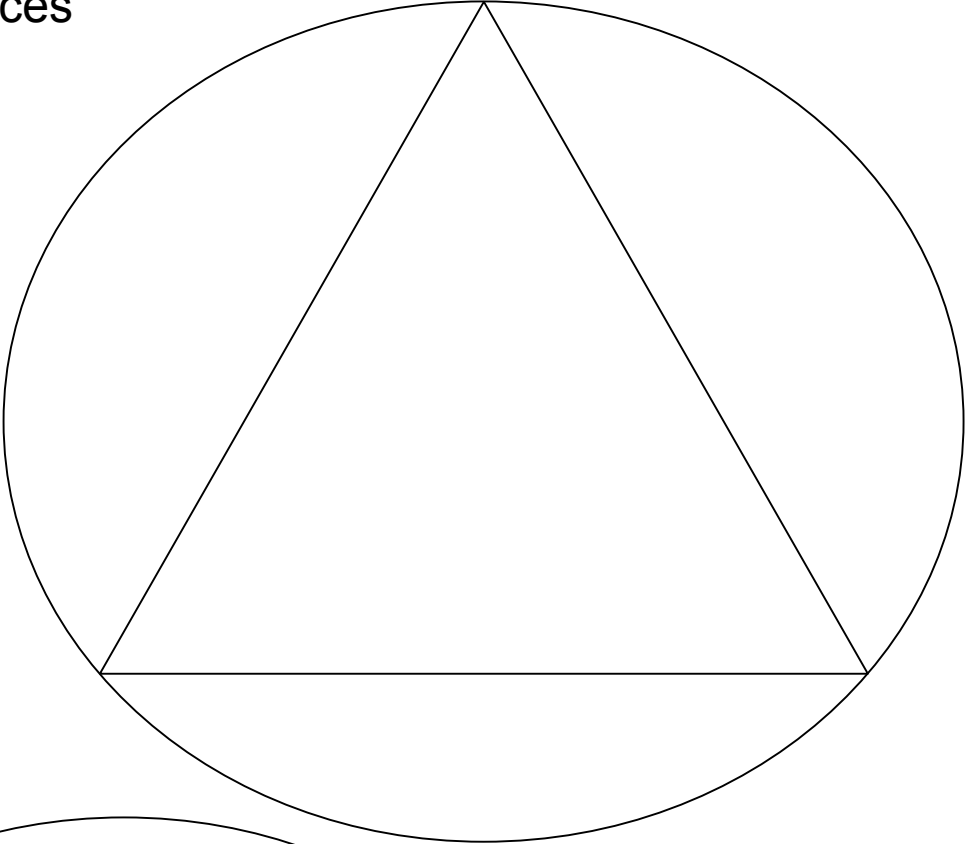
First Trimester 1998 - Research Project
Element Icosahedron
Ms. Slocum

This project will count in the TEST Section for this term and will be equivalent to ONE (1) test. This project is to be completed by Tuesday, **November 3rd**.

The following guidelines are to be followed to appropriately complete this project:

1. Choose an element by Friday, **October 16th**. Your choice must be submitted on an index card. I will return this to you as swiftly as possible, hopefully within a day, so that you can begin your research.
2. Research your element, who discovered it, how it was discovered, what are its properties, uses, etc.
3. You must use at least **FOUR** sources and **ONE** must be a bound source (book, etc.), **ONE** must be from a CD-ROM, and **ONE** must be from the Internet.
4. Prepare a rough draft bibliography of your sources. This is due on Wednesday, **October 21st**.
5. The Element Icosahedron has twenty (20) faces. Place the information for each face on a separate index card. These are due on Monday, **October 26th**.
6. The information that you have collected is to be placed on the triangular region of the circular patterns on the following page. These are to be cut-out and put together to form an icosahedron. This is your research paper.
7. Be creative!!! The information can be presented on these faces in any manner you choose.
8. On the day this project is due, Tuesday, **November 3rd**, you are to turn in your Element Icosahedron and a word-processed bibliography. I will give you a style sheet about how to cite electronic resources. All other resources should be cited appropriately.
9. You will be graded in the following manner:
 - 5 pts -- Rough draft bibliography
 - 10 pts -- Notecards
 - 15 pts -- Style of presentation
 - 10 pts -- Appropriate uses of resources
 - 50 pts -- Information included about your element.
 - 10 pts -- Final bibliography

Patterns for Faces
of Icosahedron



CHEMISTRY

Element Icosahedron Research Project

Electronic Sources

Ms. Slocum

There are numerous electronic sources available to you here at Greens Farms Academy. This is a list of some of those sources, their location, and how to access them.

1. Internet -- Available in the Chemistry Lab and Library. This is an excellent source of all types of information. You can find physical properties, chemical properties, uses, etc. here. The librarians have bookmarked some sites for you to use. Click on "Favorites", then on the "Chemistry" Folder to access these.
2. Discover the Elements -- CD-ROM -- Available in the Chemistry Lab. See me to obtain access to the appropriate computer. To use: Insert the CD. Once the DTE icon appears on the desktop, double click on the file "ELEMENTS Info." This will start the CD-ROM, just follow the directions on the screen from here. This is also an excellent source of information.
3. Periodic Table -- CD-ROM -- Available in the Chemistry Lab. See me to obtain access to the appropriate computer. To use: Insert the CD. Once the Periodic Table icon appears on the desktop, double click on the icon. Open the file marked "PTV," open the appropriate element file. This CD does not give you much reference material; however, it does allow you to view movie clips of a number of element reactions.
4. ChemMatters -- Available in the Library. This is another excellent source of information.
5. Periodic Table -- Available on the IBM's in the library. Click on "START" then "Programs" then "Periodic." To obtain information, click on the desired element.

Element Balls (Icosadehrons)

PURPOSE: To produce an icosahedron (20-sided structure) showing information about a chemical element.

MATERIALS: Construction paper, poster board, plastic sheets, stapler, glue, markers, pens, crayons, decorations, ribbon, wire, let your creativity blossom; patterns.

PROCEDURE:

1. Using the circle pattern enclosed, cut 20 circles from your paper or construction material.
2. Using the triangle pattern in the circle, trace the triangle inside the circle.
3. Inside 19 of the 20 triangles, write, draw, or copy interesting pieces of information or properties about the element. Decorate the circles and/or triangles as creatively and as neatly as possible. Use properties of the element to suggest ideas for decorations. Be sure ALL written information is INSIDE the triangle area. On the last (20th) triangle clearly write YOUR NAME, period number, and the ELEMENT SYMBOL.
4. Begin the assembly of the element ball by neatly and precisely folding the 20 circles on the marked triangle lines. See Figure 1.
5. Select 5 of the folded circles (triangles with flaps) and place them in a circle with the top points toward the center, like pieces of a sliced pie. See Figure 2.
6. Neatly and securely glue (or staple) the curved upright edges at the creases. Once glued and dried, it should resemble a hat. This will become the top of the ball.
7. Repeat Steps 5 and 6 to make the bottom of the ball.
8. To make the center section of the ball, take the remaining 10 folded circles (triangles with flaps) and place them in a straight row with points alternating up and down along the line. See Figure 3. Glue the edges securely at the creases.
9. Bring the ends of the row of triangles just formed together and glue the two ends to form a ring. Allow to dry.
10. Set the ring on a flat surface and place the top on the ring matching together the curved tabs pieces. Glue the tabs along the creases securely. Turn the assembly over and attach the bottom in a similar manner.
11. Punch a hole in one of the tabs, tie on a piece of yarn, string, or ribbon about 30 cm long. On the string, glue or staple a card or piece of construction paper (similar to your construction material) containing your name and period number.

REFERENCE SOURCES: chemistry textbooks, CRC Handbook of Chemistry, general encyclopedias, science encyclopedias, computer references, dictionary, periodic table, library reference materials.

SUGGESTED INFORMATION: element symbol, symbol origin and meaning, element discoverer, common uses, current prices, boiling or melting points, crystal structure, radioactivity, isotopes, sources of the element, common oxidation numbers, density, abundance in Earth's crust, etc.

NAME _____

PERIOD _____ DATE _____

ELEMENT BALL RUBRIC

In an extra credit project, it is important for the student to understand and properly use the skills needed for constructing and presenting the project. These skills might include developing spatial relationships and abilities, research, comprehension of new or complex materials, and creativity. This assignment will practice all of these skills. The rubric (standards) used for assessing the success of the extra credit project are given below.

1

3

5

Finished Product

Many sides of the project are not finished or of poor quality. The assembly is poor quality. Information has been assembled just to complete the project.

A few of the sides are not finished or are of minimal quality. Some structural faults can be seen.

All 20 sides are finished with quality construction. No structural faults can be seen. Directions carefully followed.

Correct Information

Much of the information is incorrect or not appropriate for this element. Many misspellings or mistakes in the information. Needs much work.

A few of the triangles are incorrect or not appropriate for this element. A few misspellings or pieces of incorrect chemical information.

All sides are grammatically correct and represent correct chemical information.

Approach to Element

Appears as if student just looked up information and assembled the project. No thought behind the order or material presented.

Some thought has been spent on organizing this project and presenting it. Appealing qualities exist.

The project is very appealing to see. It possesses a distinct order for the presentation of the information.

Creativity/Uniqueness

Student added no special touches to individualize the project. Nothing interesting exists in the ball.

Students have spent some time trying to individualize their project. Unique approaches are used in the formation of the triangles.

Attention is drawn to this project due to unique patterns, styles, or designs. The individuality of this project is readily apparent.

Presentation

Difficult to hear. Information shared is ordinary and not exciting. No enthusiasm or presentation style.

Presentation adequately made. Information shared is of some interest and is clearly enunciated.

The presentation is creative, captivating, and easily understood. The information shared is of interest to all and it demonstrates the importance or uniqueness of the element.

TOTALS