

Math Concept(s): Geometry

Source / Text:

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Attach the following documents:

Lab Instructions:

Find 2D shapes in the hallways and commons of the school.

Draw the shapes.

Specify the object owning the shape.

Measure and records lengths of all sides.

Measure and record all angles.

Determine perimeter of all drawn shapes.

Determine area of all drawn shapes.

Include the following shapes:

Triangles: 2-5 types

Square: 1

Rectangle: 1

Parallelogram: 1

Circle: 1+

Trapezoid: 1+

Student Handout(s):

None

Rubric and/or Assessment Tool:

Legible: 0 – 4

All shape types included: 0 – 4

All lengths recorded with units: 0 – 4

All angles recorded with units: 0 – 4

All shapes have perimeter calculated and labeled correctly with units: 0 – 4

All shapes have area calculated and labeled correctly with units: 0 – 4

Indicate “SPECIFIC” relationship to Science, Technology, or Engineering

Identification and measurement of shapes in the real world.

Short Description (Be sure to include where in your instruction this lab takes place):

Lab Plan

Prerequisite skills:

Taking measurements with ruler, tape measure, protractor

Calculating perimeter of 2D shapes

Calculating area of 2D shapes

Lab objective:

Strengthen knowledge of 2D shapes in the real world.

Strengthen accurate measuring skills.

Strengthen accurate calculation of perimeter of different 2D shapes.

Strengthen accurate calculation of area of different 2D shapes.

Standards:

Mathematics K–12 Learning Standards:

- G-MG: Geometry – Modeling with Geometry
 - G-MG.1: Use geometric shapes, their measures, and their properties to describe objects.
 - G-MG.3: Apply geometric methods to solve design problems.

Standards for Mathematical Practice:

Mathematical Practice(s):			
<input checked="" type="checkbox"/>	MP-1	Make sense of & persevere in solving problems.	<input checked="" type="checkbox"/> MP-5 Use appropriate tools strategically.
<input checked="" type="checkbox"/>	MP-2	Reason abstractly & quantitatively.	<input checked="" type="checkbox"/> MP-6 Attend to precision.
<input type="checkbox"/>	MP-3	Construct viable arguments & critique the reasoning of others.	<input checked="" type="checkbox"/> MP-7 Look for & make use of structure.
<input checked="" type="checkbox"/>	MP-4	Model with mathematics.	<input type="checkbox"/> MP-8 Look for & express regularity in repeated reasoning.

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

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Leadership/21st Century Skills:

<p><u>21st Century Interdisciplinary themes</u> (Check those that apply to the above activity.)</p> <input type="checkbox"/> Global Awareness <input type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy <input type="checkbox"/> Civic Literacy <input type="checkbox"/> Health/Safety Literacy <input type="checkbox"/> Environmental Literacy			
<p><u>21st Century Skills</u> (Check those that students will demonstrate in the above activity.)</p>			
<p>LEARNING AND INNOVATION <u>Creativity and Innovation</u> <input checked="" type="checkbox"/> Think Creatively <input type="checkbox"/> Work Creatively with Others <input type="checkbox"/> Implement Innovations <u>Critical Thinking and Problem Solving</u> <input checked="" type="checkbox"/> Reason Effectively <input type="checkbox"/> Use Systems Thinking <input type="checkbox"/> Make Judgments and Decisions <input checked="" type="checkbox"/> Solve Problems <u>Communication and Collaboration</u> <input checked="" type="checkbox"/> Communicate Clearly <input type="checkbox"/> Collaborate with Others</p>	<p>INFORMATION, MEDIA & TECHNOLOGY SKILLS <u>Information Literacy</u> <input type="checkbox"/> Access and Evaluate Information <input type="checkbox"/> Use and manage Information <u>Media Literacy</u> <input type="checkbox"/> Analyze Media <input type="checkbox"/> Create Media Products <u>Information, Communications and Technology (ICT Literacy)</u> <input type="checkbox"/> Apply Technology Effectively</p>	<p>LIFE & CAREER SKILLS <u>Flexibility and Adaptability</u> <input type="checkbox"/> Adapt to Change <input type="checkbox"/> Be Flexible <u>Initiative and Self-Direction</u> <input checked="" type="checkbox"/> Manage Goals and Time <input checked="" type="checkbox"/> Work Independently <input checked="" type="checkbox"/> Be Self-Directed Learners <u>Social and Cross-Cultural</u> <input type="checkbox"/> Interact Effectively with Others <input type="checkbox"/> Work Effectively in Diverse Teams</p>	<p>Productivity and Accountability <input checked="" type="checkbox"/> Manage Projects <input checked="" type="checkbox"/> Produce Results <u>Leadership and Responsibility</u> <input type="checkbox"/> Guide and Lead Others <input type="checkbox"/> Be Responsible to Others</p>

<https://wa-appliedmath.org/>

Teacher Preparation: (What materials and set-up are required for this lab?)

Materials

- Rulers
- Protractors
- Paper
- Pencils/Erasers
- Calculator
- Access to hallways/commons/other parts of building

Set-Up Required:

- None

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):

-

Cooperative Learning:

-

Expectations:

-

Timeline:

- 1 or 2 2-hour class periods

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab

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Career Applications

- Engineering

Optional or Extension Activities

- Work with 3D forms to calculate surface area and volume.

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