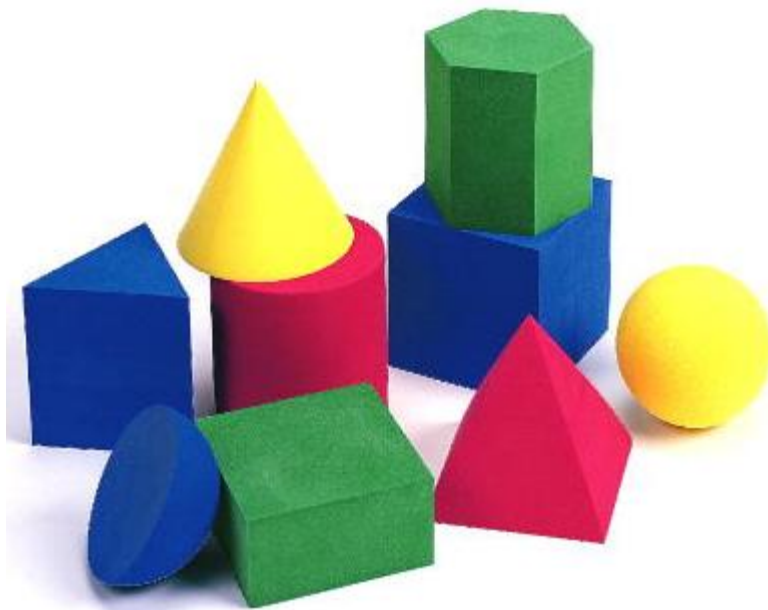


Geometry, You Don't Care? Geometry is Fun and Everywhere!

Instructional Unit Resource Guide

Based on Principles of Universal Design and Differentiated Instruction



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Authors' Note

This geometry unit is designed for grades 2 and 3. Our teachers will teach this unit prior to Spring—most likely in February. We plan to spend 1-2 weeks on this unit.

Our students struggle with geometry concepts, according to ISTEP and other standardized testing data. Our focus is for students to gain proficiencies and mastery-level knowledge of geometry concepts in an engaging manner. We are taking into consideration the different learning styles and strengths of our learners to differentiate instruction; this consideration is easier in the framework of universal design for learning.

In order to accomplish the goals of the unit, we would need SmartBoards, computer access, and other resources as outlined in the teacher library and learner activities.



If you would like to learn more about our unit, or if you have questions, please contact Dexter Elementary School, 917 South Dexter Avenue, Evansville, IN 47714. (812) 476-1321.

Standards

Students will meet the following standards in this unit:

Geometry

3.4 Students describe and compare the attributes of plane and solid geometric shapes and use their understanding to show relationships and solve problems.

3.4.1 Identify quadrilaterals as four-sided shapes.

3.4.2 Identify right angles in shapes and objects and decide whether other angles are greater or less than a right angle.

3.4.3 Identify, describe, and classify: cube, sphere, prism, pyramid, cone, cylinder.

3.4.4 Identify common solid objects that are the parts needed to make a more complex solid object.

3.4.5 Draw a shape that is congruent to another shape.

3.4.6 Use the terms point, line, and line segment in describing two-dimensional shapes. (Core Standard)

3.4.7 Draw line segments and lines. (Core Standard)

3.4.8 Identify and draw lines of symmetry in geometric shapes (by hand or using technology).

3.4.9 Sketch the mirror image reflections of shapes.

3.4.10 Recognize geometric shapes and their properties in the environment and specify their locations.

Resources for locating state standards:

Developing Educational Standards

<http://dc.doe.in.gov/Standards/AcademicStandards/StandardSearch.aspx>

Planning for Academic Diversity

For **students that cannot read at grade level...**

Try text to speech <http://www.readplease.com>

If students have **difficulty mastering the vocabulary** of the unit...

Try a visual thesaurus <http://www.visuwords.com>

Try math dictionary

<http://www.teachers.ash.org.au/jeather/maths/dictionary.html>

If you have students who **need the instructional materials in a language other than English...**

Try Babel Fish <http://babelfish.altavista.com>

If you have students who have **difficulty with handwriting**, (either speed or accuracy), then...

Consider dictation <http://www.idictate.com>

For students who have **difficulty with the calculating activities** in this unit, try...

Using Web math <http://www.webmath.com>

Using Ask Dr. Math <http://mathforum.org/dr.math>

<http://www.freemathhelp.com/geometry.html>

<http://www.aaastudy.com/grade3.htm#topic186>

Geometry of Crop Circles

<http://www.coolmath.com/geometry-of-crop-circles.html>

Tessellations

<http://www.coolmath.com/tesspag1.htm>

For **hearing impaired students** then use

www.aslpro.com

www.brainpop.com/math Enable close captioning

If your unit **requires students to conduct research**, you might want to use...

Google Toolbar <http://toolbar.google.com/>

For students who have **difficulty with calculating**:

<http://www.freemathhelp.com/geometry.html>

<http://www.aaastudy.com/grade3.htm#topic186> Internet Search Engine for Kids

<http://www.ivyjoy.com/rayne/kidssearch.ht>

For students who **need an extra challenge**

Geometry and Astronomy

<http://365daysofastronomy.org/2009/01/05/january-5-the-seasons-and-solar-system-geometry>

Make Tangrams for Geometry

<http://www.myweb3000.com/tangramgame.html>

Teacher Library

Resources for locating instructional materials:

4 Teachers

<http://4teachers.org/>

42Explore: Thematic Pathfinders

<http://42explore.com/>

Blue Web'n

<http://www.kn.pacbell.com/wired/bluewebn/>

Google

<http://www.google.com>

Kathy Schrock's Guide for Educators

<http://school.discovery.com/schrockguide/>

TrackStar

<http://trackstar.hprtec.org>

Thinkfinity

<http://www.thinkfinity.org>

Fun Brain

<http://www.funbrain.com>

Ed Helper

<http://www.edhelper.com>

ICATS

<http://www.evscicats.com>

Lesson Plans

Shape Built of Straw

http://www.indianastandardsresources.org/files/math/math_3_4_5.pdf

Shaping Your Dream House

http://www.indianastandardsresources.org/files/math/math_3_4_dream%20house.pdf

Right on Angles

http://www.indianastandardsresources.org/files/math/math_3_4_2.pdf

Mirror Mirror

http://www.indianastandardsresources.org/files/math/math_3_4_mirror.pdf

Grade 3 Power Indicators

<http://www.evscicats.com/edtech/academics/resources/materials/thirdpowerin.doc>

IDOE Grade 3 Standards Resources

<http://dc.doe.in.gov/Standards/AcademicStandards/resources.aspx>

Smartboard lesson

<http://www.bristolvaschools.org/mwarren/SBActivities.htm>

Smartboard Templates

<http://www1.center.k12.mo.us/edtech/SB/templates.htm>

Geometry In The World of Art

<http://illuminations.nctm.org/LessonDetail.aspx?ID=L554>

Content Accessibility

The UDL principle of multiple means of representation is an important design principle for creating accessible and engaging instruction. The following resources will be provided to ensure that diverse students have access to the instructional content presented in this unit.

Text-based content:

Changing font size in your browser or word processor

Accessing Digital Textbooks ([Bookshare](#), [NIMAS](#))

Public Domain e-books ([Project Gutenberg](#))

Web page content:

See page 5 for sites

Audio supports for text:

Audio content:

Video-based content:

Dr. Math <http://mathforum.org/dr.math/>

BrainPop- in able close captioning -[BrainPop](#)

How-to guide:

Dr. Math <http://mathforum.org/dr.math/>

Simplified language: [Simple English Wikipedia](#)

Concept Map (Graphic Organizer)

Use Inspiration data

www.inspiration.com/InspireData

Vocabulary support- Visual Math Dictionary:

<http://www.teachers.ash.org.au/jeather/maths/dictionary.html>

Physical access: National Library of Virtual Math

www.nlvm.usu.edu

Sensory access: National Library of Virtual Math www.nlvm.usu.edu

Learner Activities

The UDL principle of multiple means of engagement is an important design principle for creating meaningful learning activities. The following materials will be used to engage diverse learners in the subject matter of this unit.

Include a screen print and a brief description of one or more exemplary web sites or educational products.

Help!

Resources for locating instructional materials:

Cool Math 4 Kids – includes interactive geometry games

<http://www.coolmath4kids.com/0-geometry-math-art.html>

National Library of Virtual Manipulatives

www.nlvm.usu.edu

National Council for Teaching Mathematics – geometry games

<http://illuminations.nctm.org>

Yahooligans

<http://trackstar.hprtec.org/>





Thinkfinity

<http://www.thinkfinity.org/>

Interactive vocabulary practice (see screen shot below)


www.1.center.k12.mo.us/edtech/SD/templates.htm

Your turn! Define these vocabulary words. Then give examples of objects that represent each solid.

Sphere	
Cone	
Pyramid	 

Assessment

The UDL principle of multiple means of expression is an important design principle for assessment. The following materials and resources will be useful for assessing student knowledge, skills, and application of their learning.



Evaluation: The learner will be able to discriminate between basic geometric figures: 3-D and plan shapes. The learner will be able assess two congruent figures as well as assess symmetrical objects

Synthesis: The learner will be able to design objects which encompass a variety of geometric shapes

Analysis: The learner will be able to identify vertices and compare geometric shapes

Application: The learner will be able to identify plane and solid figures.

Comprehension: The learner will be able to distinguish the number of edges, faces, and sides of a basic 3-D figure.

Knowledge:
The learner will be able to identify a quadrilateral and describe why it is a quadrilateral.

Resources for creating assessment materials:

Rubric Tools

<http://rubistar.4teachers.org>

http://www.teach-nology.com/web_tools/rubrics/

Scoring Guide for Student Projects

<http://www.ncrtec.org/tl/sgsp/index.html>

Electronic Quiz Author Tools

Quia <http://www.quia.com>