


## What is a Hexagon? Definition, Area \& Angles







In geometry, an equilateral triangle is a triangle in which all three sides are equal. In the familiar Euclidean geometry, equilateral triangles are also equiangular; that is, all three internal angles are also congruent to each other and are each $60^{\circ}$.

## YES! By slides,

 flips and/or turnsCommon Core
Grade levels: 1,2,3 and 4

## Creating a Hexagon inside a Square using a Protractor and Angles



120

60

00
Place point at every 60 degrees


Connect the Dots!

Enlarging an existing Hexagon of ANY size...to ANY size... Draw 3 intersecting lines,
Extend all 6 angles by an equal length, then connect the dots!


Folding in Half, Creasing and Measuring the Mid-points of of Opposite Quadrants' Sides, then, Connecting the 6 Reference Points - will give you a Hexagon - but it will NOT be regular

Inside any Square


## Paper-folding and Cutting:

## HEXAGON ORIGAMI

Here is an easy way to make a hexagonal piece of paper:

1. Fold a square in half, so it is a triangle, and then Fold the two tips up across each other at about about a thirty degree angle as shown below.
2. Think of it as a triangle giving itself a hug.
3. Now you have six layers of paper all folded together and all you need to do is trim the top off in a straight line and unfold



The Hexagon Project Uses the Hexagon as Metaphor for Interconnectedness and
Interdependence


Memorial HS, Arkansas


Riverside Jr. HS, PA

If You Believe... It is critical for young people to confront, question and reconsider attitudes and beliefs as part of their responsibilities as citizens, as part of their own personal growth and formation of self...


Tracey's Hope -Taylor, PA


Greening of Verrettes, Haiti

If You Believe... that young people throughout the world should have opportunities to explore real-world themes, issues and ideas within schools and communities...

If You Believe... through creative thinking, research and taking a stand on one's beliefs and understandings, changes of attitudes and action can occur...


Equal Pay
Adelaide, Australia


Human Rights NEPAL


Fair Trade

"Interdependence"
"We may build our own unique lifestyles, careers, or businesses, but those 'towers' of success come from cooperation and interdependence with others in our social and professional lives. "


If You Believeoo the arts are powerful vehicles for this exploration...

Then....
you are ready and invited to join
Standards-based
Social Justice Concepts and Themes
with
The Interdependence HEXAGON PROJECT
and
get

## Hooked on Hexagons



## Interdependence Themes

(Hexagon Project)

HUMAN RIGHTS of every person
We are one human family. Examine consumerism vs. having enough

Being more vs. having more

## DIVERSITY

Freedom for and acceptance of religious, ethnic, backgrounds, cultural identities, abilities. Personal and group dignity

## COMMONALITIES

## \& IDENTITY

Having Empathy-
We are similar and
share common experiences. We can
connect to issues
that are
personal and local with
issues that are global.
CHILDREN
We need to protect children's rights and goods and insure they obtain Safety, Health and Education

## Interdependence Goals:

1. To see ourselves as citizens of one civilized world, recognizing rights and responsibilities to the common goods and liberties of humankind as a whole.
2. To explore these themes through "activist" art-making

## GOVERNANCE

## TECHNOLOGY

Use positively and ethically to create informed global communities

We need to understand peoples' rights to govern themselves in a manner that allows them to flourish. Democratic rights and responsibilities.

## ENVIRONMENT

We need a safe, sustainable global environment We are one community We only have one earth to protect or destroy

## 2018 Theme: Transforming Conflict



## The Theme

The 2018 theme of "Transforming Conflicts" is a call to promote global citizenship, enabling learners to

- Develop an understanding of and make connections among local, national and global issues
- Develop skills for civic literacy such as critical thinking, problem solving, peacebuilding and personal and social responsibility (UNESCO, 2015).


## Deadline for Schools is June 30

## 2017 marked 11 years that the Hexagon Project has been building Social Justice Art Education opportunities

for teachers, young people and communities worldwide through the use of a small-yet challenging - downloadable tessellating template, metaphor for Interdependence.
In our September 2017 International Hexagon Project Exhibition, we added another 600 hexagons, making 8600 since 2006.


Lackawanna Riverfest

## Connecting with COMMUNITIES

 Arts on the Square

## Global Citizenry Collective Responsibility

"... the notion of being a global citizen is incorporated into every discipline we teach.
The hexagons...helped students to forge cognitive links between the subjects of the hexagons and the major issues in
their own lives and the lives of other students around the world. Each shares the common values of health, education and human rights.
This exercise reinforced the notion of collective responsibility and exposed students to the common experiences of humankind as a whole."

Gene Teeger, Art Teacher


## Canada

Throughout the United States: California, Nevada, Washington, Illinois, Wisconsin, Indiana, Florida, North Carolina, New York, New Jersey, Delaware, Maryland, Pennsylvania, Minnesota and others



Pre-service students in Haiti



Kathmandu, NAPAL

Japan


## Philippines



Also Egypt, England, Greece, three African countries and Australia



Hexagon Project in Your
Community or School? 2016



Seton Hill University, Greensburg,PA 2016





## MIDDLE LEVEL <br> STEUDIO STANDARDS IN ACTION! | PLANNING SHEET

## STANDARDS: GRADE 7

GRADET CREATING
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an idenatifed gaal.
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0 Demonstate awareness of ethical responsibility to oneseff and others when posting and sthating images and other material th
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A Apply visual organizational strategiest todesign and produce a
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$\square$ Relect on and explain important intormation about peesonal artwookin an an artist statement or another format.
GRade 7 PRESENTING
I Compare and contast how tectnologies have changed the way artworkis spereereved presented, nand experieneed
1 Bsedo on criteria, analyze and evaluate methods for preparing and resentingatt
I Compare and contast ivewing and experienoing sollections and extibitions indifferent verve
GRADE7 RESPONDING
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experience of an artwork infuence lowitis percereved and valued Analyze multiple ways that images infuence spedifcactien I Inteprete art by analyzing ant-making approaches, the subject matter, and sse of media toidentify idess and mood conveyed.
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GRADE 7 CONNEGING
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or design in the community.
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STARTERS


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STUDENTS IN ACTION!
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Hexagonal Book Design: Connecting Math, Book Arts and Social Justice

## Math Vocatulary:



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Radius- -allf of the longest distance accoss a
circte circle.
Arc Messurement- radiss measurement ofa
circle usced when constructing a circie using a circle usc
compass.
Hexago
natue.
Linara- arangect in or extending along
straightor or nearly striegt tine.
Non-Lincar- not denoting, involving. of
aranged ina straight line
Congruent- In geometry, tro figure or objeca
are conervent if they have whe same slape and
size.
Angle- 1 ithe space (usually measured
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 and measure $120^{\circ}$ each. $22^{\circ}$ tool
Equilateal Triangle- riangle witheach side

having the same neasurenent and each angle | having |
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Polygon- stape with many sidec
Tesselate- - over (ap paxe surface) by repeated
use of a single shape without 2 apes of

parterss in nature for example in the arays of
hexagonal cells found in hoocyecomiss.


CommonCore Mati: Standards Applied:
$\square$ CC.23.HS.A4 Apply the concept of congruence to create colo

ucingappropriate tools.
Girad 7 CC:
Gigures.
fraw , construct and describe geometrical igures. "." ", "solve real -ife mathematical problems involving
angle measure The Grade 8 CC: analyze two-and dirre-dimensional space and
figures using distance, angle, symmerty and congrience...

National Art Standards:
VA:Cr1.2.I. Chase from a range of materials and methods of tradtional and contemporary artistic practices plan works of art and desisen
VA.Cr2.1 IIa Through experimentation, practice, and
and persistence, demonstrate acquisition of skills and knowled
in a chosen arf form
 audiences.
Responding.

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Comecting $/$ Responding:
VA. Ca/Re 11. Relate artistic ideas and works with
socielal cultural and historici conter societal, cultural and historical context to deepen
understanding.
VA: Re9. Apply criteria to evaluate artistic work
Presenting:
VA.Pr 5 . Develop and refine artistic techniques and work for presentation


VIS-IT ${ }^{\text {TM }}$ Technique for
Creative Thinking

## ATTRIBUTE ATTACHEMENT TECHNIQUE

The Atribute Attachment technique for creative thinking in groups, like other creative thinking techniques, generates new ideas by asking the minds of the participants to integrate two or more already existing, but previously unconnected, concepts or ideas

An "attribute" is defined as a quality or characteristic of a person or thing. The Attribute Attachment technique forces the mind to create new ideas by trying to "attach" the attributes of one thing to something else, which is significantly different. In an exampl of the technique below, human sensory attributes are attached to an otherwise reason is that, by using this technique, new product designers might come up with several good ideas for new benefits and features for a current product.


Sets of six or more attribute attachment ideas can come from many sources. Human sensory and intellectual capabilities are just one source. Other human attributes emotional feelings, mobility, self-awareness, and memory are just some of them Simulative attribute attachment ideas can also be developed from a class of objects. racecars, bikes, airliners, limousines, and others


## Accordion-folded Linear Book and <br> Free-form Linear Book



## Accordion-folded Free-form Book

 with "Congruent Clusters"

## Accordion-folded Radial Book-

## Variation on Congruent Clusters



## Scoring your hexagon folds



Covering your Cover.... Make cover cardboard slightly larger than your book.


END PAPERS:
Then, either use the first and last pages of your book as end papers and glue OR use separate hexagon end paper and add a "tab" to connect to your back and front book pages



## Expand Your World- Hexagon Box Project

What is the Hexagon Project? by Christina Martin
Check out this website- http://www.hexagonproject.org
Respond creatively to the many themes of global interdependence-real-world issues-and become a part of an international movement to create a more civil, peace-minded and just world. This project is a meaningful vehicle for allowing young people to think and respond about issues of personal and global importance.

Lesson-Create an Exploding Hexagon Box using Photoshop and a simple three layer grid template. The theme for this assignment is the Hexagon Project as described above. You are to design a box incorporating three distinct layers, each with a different theme

Layer 1-All about me! You can include images of you, your friends, your hobbies, family, etc. Layer 2-Issues you are concerned about, worldwide or local.

Layer 3-What can I do to make a change-Images that represent what you can do to make a change for the better

Collect photos or images from home that you would like to incorporate in this project and bring them in after the Easter break


Find "Expand Your World" on
www.hexagonproject.org and other box ideas on Beth Burkhauser's Pinterest Site: " 3-D Hexagonal Sculptures"


Box Layer One



## MIDDLELEVEL <br> STEUDIO STANDARDS IN ACTION! | PLANNING SHEET

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            STANDARDS: GRADE 7
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GRADE7 PRESENTING
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GRADE7 RESPONDING
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STARTERS


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Hexagonal Book Design: Connecting Math, Book Arts and Social Justice

| Skills: |
| :---: |
| - Creativity <br> - Research <br> - Problem-Solving <br> - Applying Previous Knowledge <br> - Pesseverance <br> - Craftsmanship <br> - Non-Verbal Communication |

## Math Vocatulary:

 by unim an instrument or device marked in
Circl-shape made of $360^{\circ}$
Radius- -allf of the longest distance accoss a
circle. Radus
circle.
Arc Mesurement- radius measurument ofa
circle uscd when constructing a ciricle sing g Arcceas
circl suse
compass.
Hexagon- six sided shape, ofen found in
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Angle-1.the space (usually measured in

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Equilateal Triangl-- rirangle witheach side
having te same nesurenent and each angle Ehying
60.

Polygon-stape with many sides.
Tesselate- - over (ap pane surface) by repeated
use of a single shape without taps or




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angle measure"
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figures using distance, angle, symmetry and congrience...

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