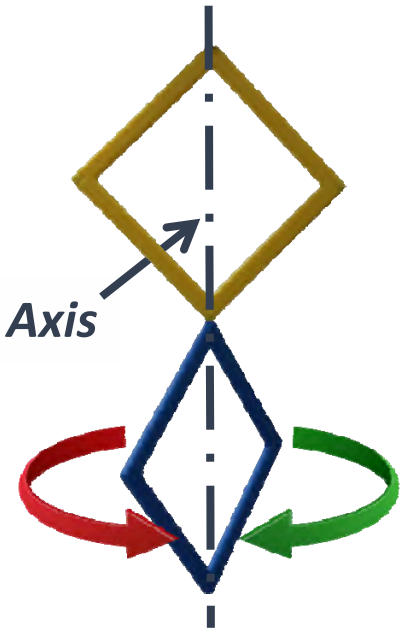
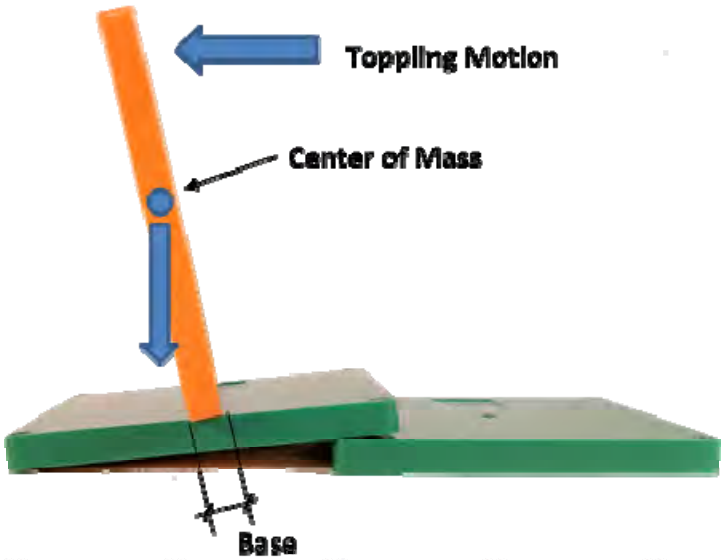
STEM, STEAM, and 21st Century Block Play



Rotation



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STEM, STEAM and 21st Century Block Play

Presented by:
***Jeff Whittaker** - President, Panelcraft Inc.*

"Opening young minds to future STEM Careers"

Workshop Summary

A properly designed block center provides key skill development opportunities such as; creativity, communication, critical thinking and collaboration. It also provides a platform for social development, physical development, STEM, STEAM, and creative expression. Learn how magnetic building systems are playing a key role in changing the way we think about block play in the 21st century preschool classroom.

Workshop Agenda

- Introduce the workshop objectives
- Background on relevant Head Start Early Learning Outcomes, HighScope KDI's and NAEYC standards
- Hands-on exploration of Magnetic Building sets and Visual Communication Tools.
- Review of sample lesson plans linked to High Scope KDI's and Activities developed by Panelcraft, Inc. and the HighScope Educational Research Foundation.
- Seek input from workshop participants
- Wrap up and summarize

The Participant will:

- Learn relationships between High Scope KDI's and block play.
- Learn skills of 21st block centers
- Learn STEM and STEAM concepts applicable to preschool block play.
- Learn literacy and communication concepts applicable to modern block play.
- Learn practical aspects of maintaining and managing block centers.

Handouts:

- Presentation Outline
- *Does Your Block Center Promote 21st Century Skills?*
- STEM Activity Guide
- Exploring Habitats
- Alternating Patterns
- Building Communities
- Making Books
- Stability and Toppling

.

Science**, **Technology**, **Engineering**, **Art/Architecture**, **Math

Does Your Block Center Promote 21st Century Skills?

A Checklist for Teachers

Karen Wise Lindeman and Elizabeth McKendry Anderson

Creativity

- ☐ There is a designated area for block play that is open every day.
- ☐ Blocks are stored on open shelves with easy access.
- ☐ A variety of blocks are available.
- ☐ There are items from nature, recycled items, and art materials.
- ☐ Children can express their ideas in different ways.

Communication

- ☐ Toy vehicles, people, animals, and other props are available.
- ☐ Children can freely move from one center to another.
- ☐ Paper, pens, and pencils are available for blueprint designs.
- ☐ Children have opportunities to use their block creations for dramatic play and storytelling.
- ☐ Children can use digital tools to document, share, and discuss work.

Critical thinking

- ☐ I allow children's block creations to "fail" and encourage children to solve problems creatively.
- ☐ I encourage children to be resilient when facing mistakes and frustrations.
- ☐ Children have time to share solutions and suggestions.
- ☐ I provide ways for children to save and document their building.
- ☐ Children can return to their structures often to improve and redesign them.

Collaboration

- ☐ There are enough blocks for groups of children to build with, but not so many that children can each have enough to build alone.
- ☐ I use the community as a resource for expanding block building and design.
- ☐ I identify tools that help problem solve and encourage children to do the same.
- ☐ Children plan, discuss, and even argue about block use, design, or purpose.
- ☐ Final block constructions are displayed or documented for sharing with others.
- ☐ I modify blocks and props for individual children's needs.

Reproduced, with permission, from Karen Wise Lindeman and Elizabeth McKendry Anderson's article, "Using Blocks to Develop 21st Century Skills in Preschool," in *Teaching Young Children*, vol. 9, no. 3, p. 26.

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STEM Activity Guide

Science, Technology, Engineering, Math

"STEM, STEAM...
...and Beyond!"

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1

Science, Technology, Engineering, Math

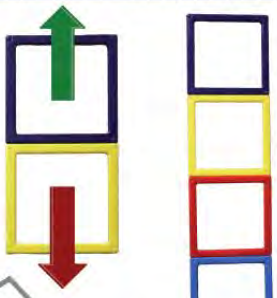
Panelcraft™ building panels connect regardless of their orientation. This is made possible by the encased spherical neodymium magnets which rotate to ensure attraction when two panels are brought together. Panelcraft is a fun way to explore Science, Technology, Engineering and Mathematical **(STEM)** concepts. The next section explains and gives examples.

SCIENCE

Force & Motion

Force is defined as a **push** or a **pull**.
How much force does a Panelcraft panel have for another panel?

Tension



When two forces are pulling things apart it is called **tension** force. To test this pick up a window panel and hang another panel from its edge.
Does it hold the weight of the panel?

Can it hold more than a single panel? Try it!

Compression

When two forces are pushing together it is called **compression** force. To test this, build a tower!

How high can you go?

2

3

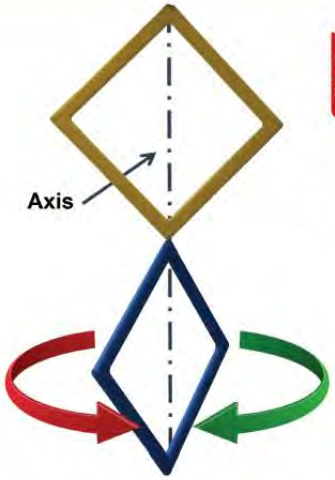
Motion

Motion can be defined as the action of changing place or position.
What types of motion can be made with Panelcraft?

Suspend a single panel from a window panel edge. Lift the second panel to the side and let go of the second panel and let it swing back and forth. This is an example of **Simple Harmonic Motion (SHM)**, known as **pendulum motion.**

Does the motion change if two or more panels are suspended? Try it!

Rotation



Rotation is a circular movement. Rotation has a central point, or Axis, that stays fixed and everything else moves around that point in a circle

Next, suspend a window panel corner from another window panel corner.
Notice that the bottom panel is free to spin completely around. This is an example of **Rotational Motion.** Now rotate the bottom panel the other way. Scientist call the two directions of rotational motion positive and negative rotation.

4

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5

Technology

Technology deals with the methods and tools humans use to provide for their needs. There is almost no limit to the number of technologies you can make with Panelcraft. Do you need a bookcase to store books? Do you want a playhouse to climb inside? Do you need a storage box to keep your favorite things? These and many more things can be built with Panelcraft.

Using Panelcraft you can even make a **hinge**. A hinge is a type of bearing that connects two solid objects, typically allowing only a limited angle of rotation between them.

Engineering

Engineering is defined as the creative application of scientific principles to design or develop structures, devices and processes. Can you apply the scientific principle of force to develop shutters for windows using Panelcraft? Can you design a door?

A **truss** is a structure comprising five or more triangular units constructed with straight members whose ends are connected at joints referred to as **nodes**. Trusses are frequently used to support bridges and highway signs. Can you build a **Truss**? The example above has 5 triangular units

6

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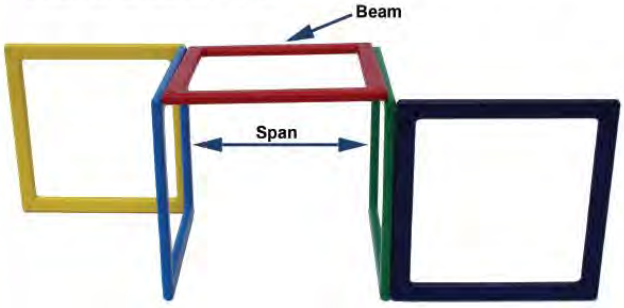
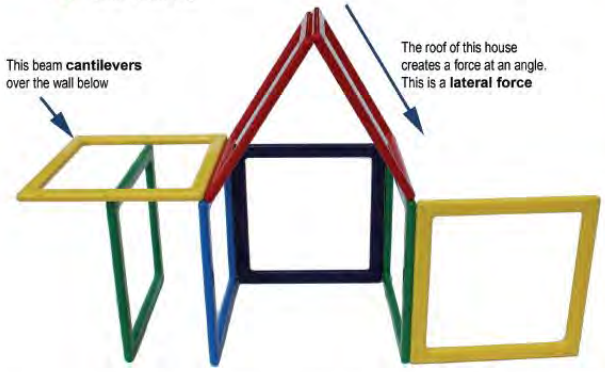
Architecture

Architecture is both the process and the product of planning, designing, and constructing buildings and other physical structures. There are many different types of buildings and structures you can make with Panelcraft.



Architects are always challenged to enclose space. In most cases, we create a structure that spans from one object to another. **Span** is the distance between two intermediate supports for a structure, e.g. a **beam** or a bridge. Below, you see an example of a simple **span**. Can you create a structure that **spans** from one object to another?

The **span** shown to the left is supported at both ends. The **span** shown below is supported at one end, and in the middle. This creates a condition called a **cantilever**. A **cantilever** is a beam anchored at only one end. **Cantilever** construction allows for overhanging structures without external bracing.



Tension and compression forces are among several forces architects deal with every day. Often, these forces are at an angle. We call these **lateral forces**.

8

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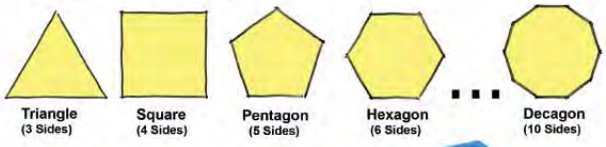
Mathematics

Mathematics is the study of patterns and numbers. The panels that make up the Panelcraft set are squares. Squares are a type of **polygon** with four sides. A polygon is a closed flat figure having three or more straight sides.



Triangle (3 Sides) | Square (4 Sides) | Pentagon (5 Sides) | Hexagon (6 Sides) | ... | Decagon (10 Sides)

Using Panelcraft you can make different types of polyhedrons. A **polyhedron** is a solid in three dimensions (3D), with flat faces, straight edges and sharp corners. One type of polyhedron you can make is a **cube**.

Other types of polyhedrons you can make are called **prisms**. A triangle shaped prism can be made with 3 panels. A pentagonal shaped prism can be made with five panels. You can make prisms with as many sides as you want!

Can you make a **polyhedron** big enough to climb in?

Building a prism with two or more levels can make what architects and engineers call a **column**. A **column** is a structural element that transmits, through compression, the weight of the structure above to other structural elements below.

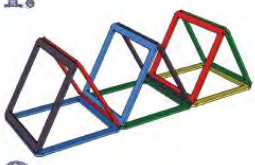
Can you make a **column** big enough to climb in?

Building Projects

for more projects, visit: www.mypanelcraft.com/resources for teachers

1.

2.



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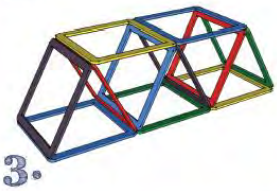

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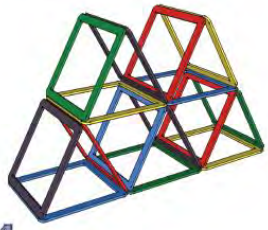

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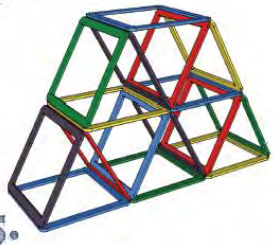
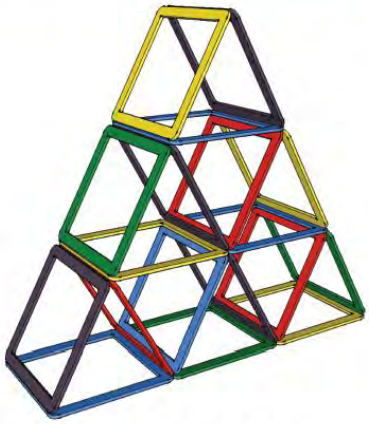


Stacked Triangle

6.



A triangle shaped prism can be made with 3 panels, this is called an **equilateral triangle**. When multiple prisms are stacked together, they make a larger equilateral triangle. How many panels make up each side of the large triangle?

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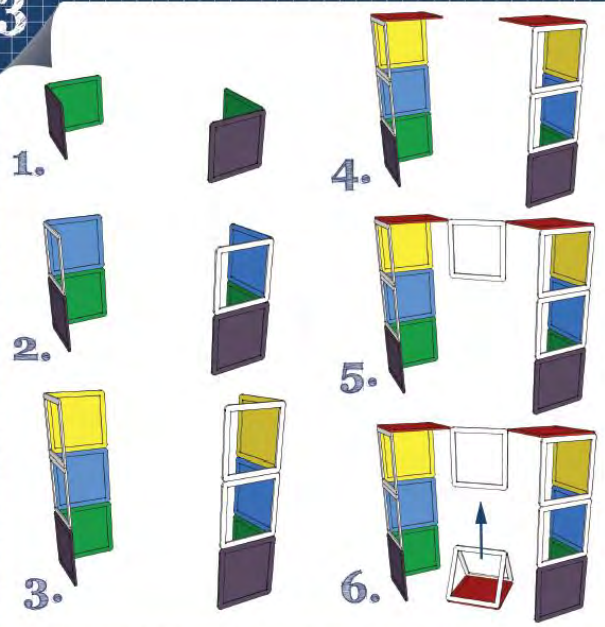
13



Silly Swing

Once the seat is suspended, it will swing back and forth. This is an example of **Simple Harmonic Motion (SHM)**, known as pendulum motion. Put a stuffed animal in the seat and give it a try!

14

Exploring Habitats

NAEYC Standards:

Day 30

2.C.03 T-P-K a. Children are provided varied opportunities and materials that support fine-motor development.

2.G. – Curriculum Content Area for Cognitive Development: Science

2.G.02 Children are provided varied opportunities and materials to learn key content and principles of science such as the difference between living and non-living things (e.g., plants versus rocks) and life cycles of various organisms (e.g., plants, butterflies, humans).

2.J.06 P- K Children are provided many and varied open-ended opportunities and materials to express themselves creatively through two- and three-dimensional art.

b. non-standard units of measurement.
Evidence includes use of things such as unit blocks, rods, counting manipulatives, squirt bottles, pitchers, or displays of cutouts of children's feet used to count as units of measurement.

HighScope KDIs:

A. Approaches to Learning

1. Initiative: Children demonstrate initiative as they explore their world.
2. Planning: Children make plans and follow through on their intentions.
3. Engagement: Children focus on activities that interest them.
5. Use of resources: Children gather information and formulate ideas about their world.
6. Reflection: Children reflect on their experiences.

B. Social and Emotional Development

7. Self-identity: Children have a positive self-identity.
8. Sense of competence: Children feel they are competent.
17. Fine-motor skills: Children demonstrate dexterity and hand-eye coordination in using their small muscles.

E. Mathematics

32. Counting: Children count things.

G. Science and Technology

46. Classifying: Children classify materials, actions, people, and events
50. Communicating ideas: Children communicate their ideas about the characteristics of things and how they work.
51. Natural and physical world: Children gather knowledge about the natural and physical world.

F. Creative Arts

40. Art: Children express and represent what they observe, think, imagine, and feel through two- and three-dimensional art.
43. Pretend play: Children express and represent what they observe, think, imagine, and feel through pretend play.

H. Social Studies

56. Geography: Children recognize and interpret features and locations in their environment.
58. Ecology: Children understand the importance of taking care of their environment.

Guidance:

Use your observations of children in your small group to choose figures and vinyl clings that your children have shown an interest in (such as ocean, jungle, farm animals) for children to include in their habitat.

Materials:

For each child:

- 6 to 10 Panelcraft blocks
- Several dry erase markers
- Vinyl clings to be included in their habitat (such as ocean, jungle, farm animals)

Beginning:

- Ask children what a habitat is (answer: a natural home or environment for an animal or plant.)
- Ask them for examples of living and non-living things exist in a habitat. Ask them if different animals live in different parts of the world.
- Ask what types of animals live in the ocean, African jungle, and American farm. Ask what kind of water sources animals need and what food different animals eat.
- Ask what might happen to animals if their habitat was hurt or destroyed by people.
- Demonstrate how Panelcraft connects together and how it can be drawn on and erased using dry-erase markers.
- Tell them that they can use the materials to build their own pretend habitat.
- Ask them what color panel they should use to make their habitat (example blue for ocean, green for jungle.)

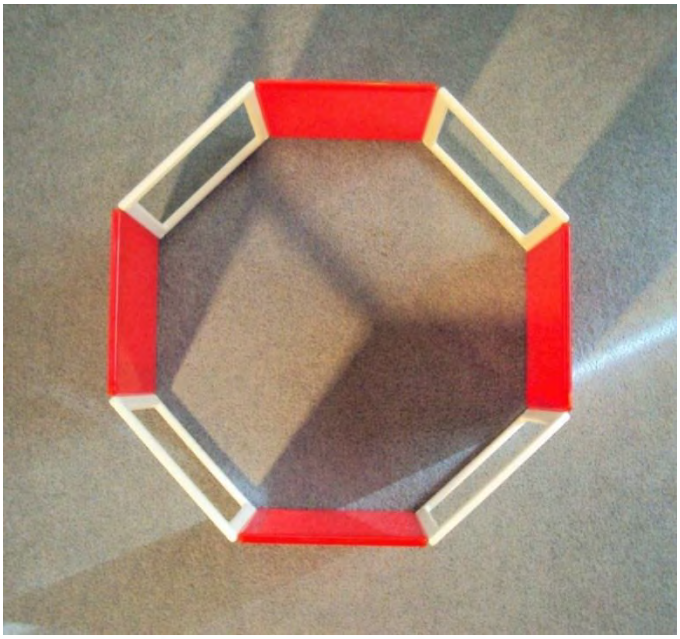
Middle:

- Move around from child to child, making specific comments on what you see children doing.
- Ask them to count the number of animals in their habitat.
- Distribute the vinyl clings and/or figures, saying something like “Some of you might want to use these with your habitats.”
- Ask them to identify the living and non-living things in their habitats.
- Ask them to identify the sources of food and water for the various animals.
- Once the habitat is finished give the children time for imaginative play with the vinyl clings, animal figures and any other toys that may enhance and extend the imaginative play experience.

End:

- Give children a three-minute warning.
- After three minutes ask them to put away any figures, remove vinyl clings, and store them in a sticker book.
- Ask them to erase the markings from the panels, take apart the habitat displays, and stack the panels for storage.

Alternating Patterns



NAEYC Standards:

Day 30

2.F. – Curriculum Content Area for Cognitive Development: Early Mathematics

2.F.03 T-P-K Children are provided varied opportunities and materials to categorize by one or two attributes such as shape, size, and color.

2.F.06 P-K a. Children are provided varied opportunities and materials to understand basic concepts of geometry by, for example, naming and recognizing two- and three-dimensional shapes and recognizing how figures are composed of different shapes.

2.F.08 Children are provided varied opportunities and materials that help them recognize and name repeating patterns.

HighScope KDIs:

E. Mathematics

31. Number words and symbols: Children recognize and use number words and symbols.
32. Counting: Children count things.
33. Part-whole relationships: Children combine and separate quantities of objects.
34. Shapes: Children identify, name, and describe shapes.
35. Spatial awareness: Children recognize spatial relationships among people and objects.
38. Patterns: Children identify, describe, copy, complete, and create patterns.

Opening young minds to future **STEM** careers.

Head Start Early Learning Outcomes:

Domain: Mathematics Development

Goal P-MATH 1. Child knows number names and the count sequence.
Goal P-MATH 3. Child understands the relationship between numbers and quantities.
Goal P-MATH 7. Child understands simple patterns.
Goal P-MATH 9. Child identifies, describes, compares, and composes shapes.
Goal P-MATH 10. Child explores the positions of objects in space.

Domain: Perceptual, Motor, and Physical Development

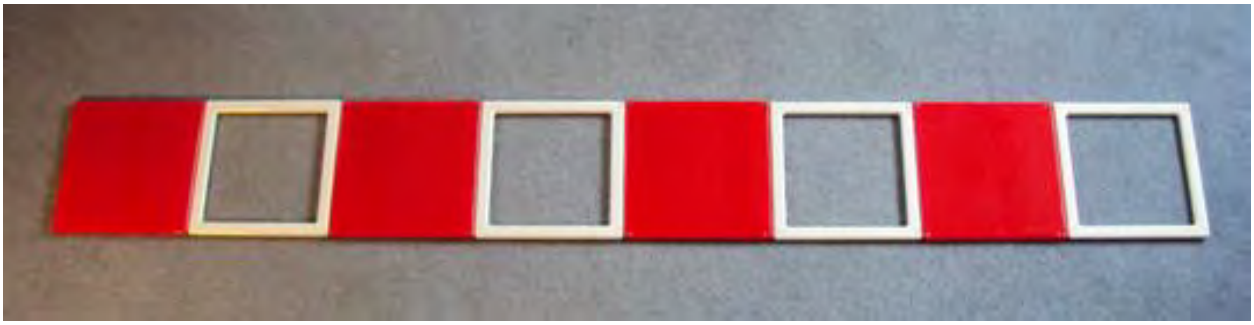
Goal IT-PMP 5. Child uses sensory information and body awareness to understand how their body relates to the environment.
Goal IT-PMP 6. Child coordinates hand and eye movements to perform actions.
Goal IT-PMP 7. Child uses hands for exploration, play, and daily routines.

Materials:

- Four solid Panelcraft blocks
- Four Panelcraft windows.

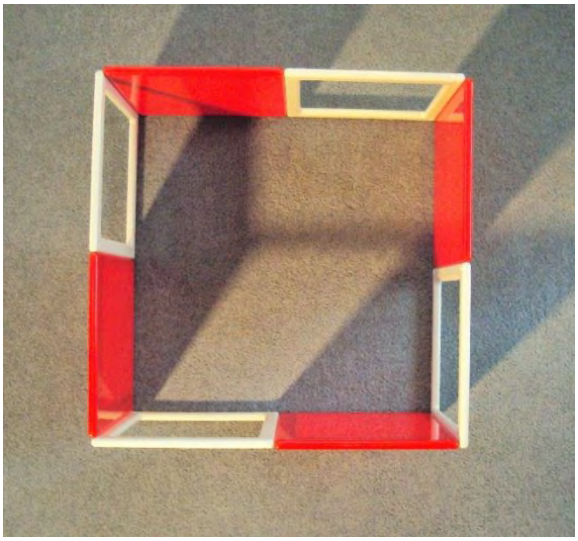
Beginning:

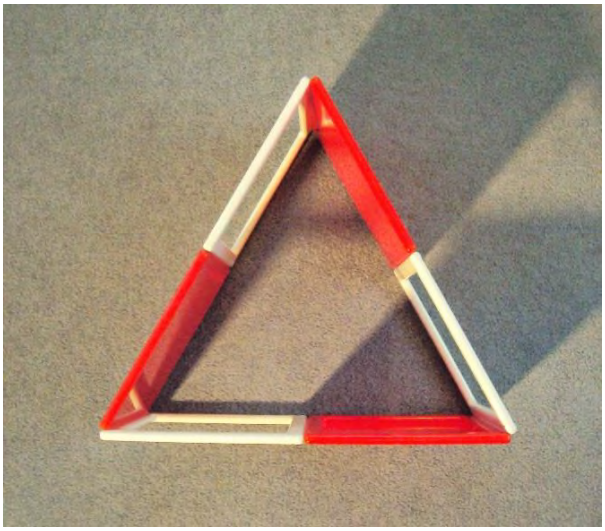
- Ask children if they know what an alternating pattern is (a pattern that changes back and forth). To illustrate, ask the children to stand in a line alternating boy/girl.
- Demonstrate a line of Panlecraft blocks that alternate between panel pieces and window pieces.
- Challenge them to construct “circles” (octagons), squares and triangles that are; 1. big enough for them to stand inside, and 2. alternate every other piece between solid panel and open window pieces.



Middle:

- Move around from child to child, making specific comments on what you see children doing.
- Ask them to count the number of panel pieces in their circles (octogons), squares and triangles.
- Ask them to count the number of window pieces in their circles, squares and triangles.
- Ask them to count how many sides each construction has.





End:

- Give children a three-minute warning.
- After three minutes ask them to take apart and stack the panels for storage.

Building Communities with Panelcraft

Objective:

NAEYC Standards:

Day 60

2.C.03 T-P-K a. Children are provided varied opportunities and materials that support fine-motor development.

2.F.03 T-P-K Children are provided varied opportunities and materials to categorize by one or two attributes such as shape, size, and color.

2.F.06 P-K a. Children are provided varied opportunities and materials to understand basic concepts of geometry by, for example, naming and recognizing two- and three-dimensional shapes and recognizing how figures are composed of different shapes.

2.J.06 P- K Children are provided many and varied open-ended opportunities and materials to express themselves creatively through two- and three-dimensional art.

HighScope KDIs:

A. Approaches to Learning

1. **Initiative:** Children demonstrate initiative as they explore their world.
2. **Planning:** Children make plans and follow through on their intentions.
3. **Engagement:** Children focus on activities that interest them.
5. **Use of resources:** Children gather information and formulate ideas about their world.
6. **Reflection:** Children reflect on their experiences.

B. Social and Emotional Development

7. **Self-identity:** Children have a positive self-identity.

8. **Sense of competence:** Children feel they are competent.

C. **Physical Development and Health**

17. **Fine-motor skills:** Children demonstrate dexterity and hand-eye coordination in using their small muscles.

E. **Mathematics**

32. **Counting:** Children count things.

34. **Shapes:** Children identify, name, and describe shapes.

35. **Spatial awareness:** Children recognize spatial relationships among people and objects.

F. **Creative Arts**

40. **Art:** Children express and represent what they observe, think, imagine, and feel through two- and three-dimensional art.

43. **Pretend play:** Children express and represent what they observe, think, imagine, and feel through pretend play.

H. **Social Studies**

56. **Geography:** Children recognize and interpret features and locations in their environment.

Head Start Early Learning Outcomes:

Domain: Social and Emotional Development SUB-DOMAIN: SENSE OF IDENTITY AND BELONGING

Goal P-SE 11. Child has sense of belonging to family, community, and other groups.

Domain: Language and Communication SUB-DOMAIN: ATTENDING AND UNDERSTANDING

Goal P-LC 2. Child understands and responds to increasingly complex communication and language from others.

Domain: Cognition SUB-DOMAIN: IMITATION AND SYMBOLIC REPRESENTATION AND PLAY

Goal IT-C 12. Child uses objects or symbols to represent something else.

Goal IT-C 13. Child uses pretend play to increase understanding of culture, environment, and experiences.

Domain: Mathematics Development SUB-DOMAIN: GEOMETRY AND SPATIAL SENSE

Goal P-MATH 9. Child identifies, describes, compares, and composes shapes.

Domain: Perceptual, Motor, and Physical Development SUB-DOMAIN: FINE MOTOR

Goal P-PMP 3. Child demonstrates increasing control, strength, and coordination of small muscles.

Guidance:

In this lesson, children will have the opportunity to build a home and create a small neighborhood. Panelcraft will provide the physical structure, while vinyl clings and action figures can be used to bring the neighborhood to life. Based on observations of small groups, help the children select vinyl clings and figures that they have shown interest in.

Materials:

For each child:

- 6 to 10 Panelcraft blocks
- Several dry-erase markers

Later, distribute figures or vinyl clings to be added to the activity.

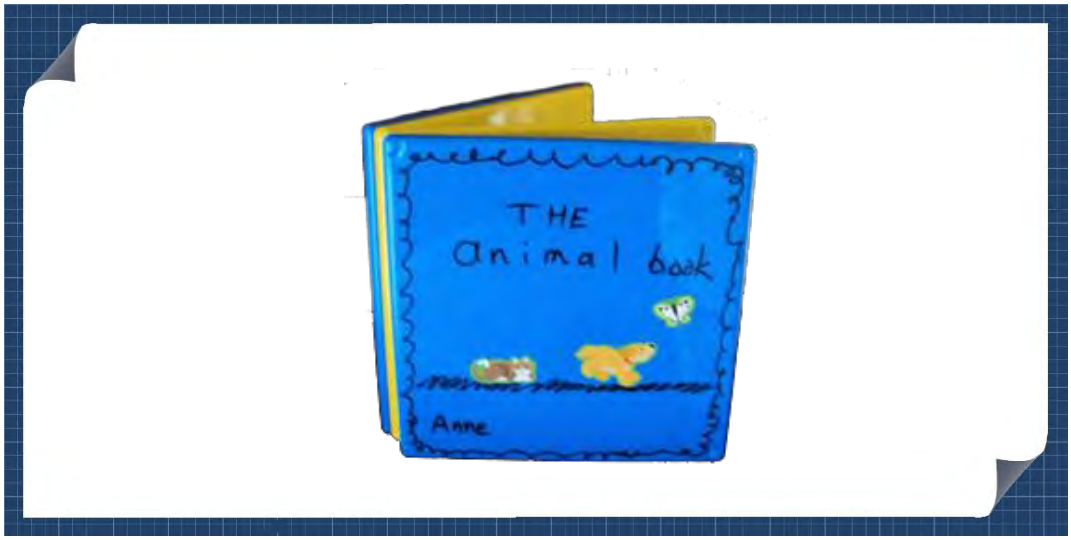
Beginning:

- Ask children to imagine what their house will look like when they grow up.
- Ask them what color they would like their house to be.
- Demonstrate how Panelcraft connects together and how it can be drawn on and erased using dry-erase markers.
- Tell them that they can use the materials to build their own pretend house.
- Tell them that when everyone has built their house, we will put them together and form a neighborhood.
- Ask them what color panel they should use to make the lawn for their neighborhood.
- Ask them what color panel they should use to make the road through their neighborhood.

Middle:

- Move around from child to child, making specific comments on what you see children doing.
- Ask them to count the number of panels in their house.
- Halfway through, distribute the vinyl clings and/or figures, saying something like “Some of you might want to use these with your houses.” Prepare a “road” and field of green panels on the floor.
- Place a “foundation” for a building site (in the form of a white window panel) every other square on the field and ask the children to select a building site to locate their house when completed.
- Once the neighborhood is finished give the children time for imaginative play with the vinyl clings, figures and any other toys that may enhance the imaginative play experience.

Making Books



NAEYC Standards:

Day 80

2.C.03 T-P-K a. Children are provided varied opportunities and materials that support fine-motor development.

2.F.03 T-P-K Children are provided varied opportunities and materials to categorize by one or two attributes such as shape, size, and color.

2.F.06 P-K a. Children are provided varied opportunities and materials to understand basic concepts of geometry by, for example, naming and recognizing two- and three-dimensional shapes and recognizing how figures are composed of different shapes.

2.J.06 P- K Children are provided many and varied open-ended opportunities and materials to express themselves creatively through two- and three-dimensional art.

HighScope KDIs:

6. **Reflection:** Children reflect on their experiences.

B. Social and Emotional Development

8. **Sense of competence**: Children feel they are competent.

C. Physical Development and Health

17. **Fine-motor skills:** Children demonstrate dexterity and hand-eye coordination in using their small muscles.

D. Language, Literacy, and Communication

27. **Concepts about print:** Children demonstrate knowledge about environmental print.
28. **Book knowledge:** Children demonstrate knowledge about books.

E. Mathematics

31. **Number words and symbols:** Children recognize and use number words and symbols.
32. **Counting: Children count things.**

F. Creative Arts

40. **Art:** Children express and represent what they observe, think, imagine, and feel through two- and three-dimensional art.

43. Pretend play: Children express and represent what they observe, think, imagine, and feel through pretend play.

Head Start Early Learning Outcomes:

SUB-DOMAIN: PRINT AND ALPHABET KNOWLEDGE

Goal P-LIT 2. Child demonstrates an understanding of how print is used (functions of print) and the rules that govern how print works (conventions of print).

SUB-DOMAIN: COMPREHENSION AND TEXT STRUCTURE

Goal P-LIT 4. Child demonstrates an understanding of narrative structure through storytelling/re-telling.

SUB-DOMAIN: WRITING

Goal P-LIT 6. Child writes for a variety of purposes using increasingly sophisticated marks.

Domain: Mathematics Development SUB-DOMAIN: COUNTING AND CARDINALITY

Goal P-MATH 1. Child knows number names and the count sequence.

Goal P-MATH 2. Child recognizes the number of objects in a small set.

Domain: Perceptual, Motor, and Physical Development SUB-DOMAIN: FINE MOTOR

Goal P-PMP 3. Child demonstrates increasing control, strength, and coordination of small muscles.

Guidance:

A small stack of Panelcraft panels can help children demonstrate their knowledge of books. The front and back panel can represent the front and back cover and the panels in between can represent the pages. Use your observations of children in your small group to choose dry-erase markers with various colors and reusable vinyl sticker clings representing topics your children have shown an interest in.

Materials:

For each child:

- 4 to 8 Solid Panelcraft Panels
- Several dry-erase markers
- Vinyl Clings

Beginning:

- Ask children to name the parts of a book (answers include front cover, pages with pictures or words, back cover, spine, etc.).
- Demonstrate how a stack of 4 or 5 Panelcraft panels can be opened and closed and stored on a bookshelf like a book (see fig. above).
- Demonstrate how the panels can be drawn on and erased using dry-erase markers and/or decorated with vinyl clings.
- Discuss how books normally deal with a single topic.
- Explain that they can use these materials to make a book on a topic of their own choice, examples may include; people, plants, animals, cars and trucks, etc..
- Inform them that it will be easier to make the book if they design the pages separately, then they can decide what order to place the pages and stack them in that order.

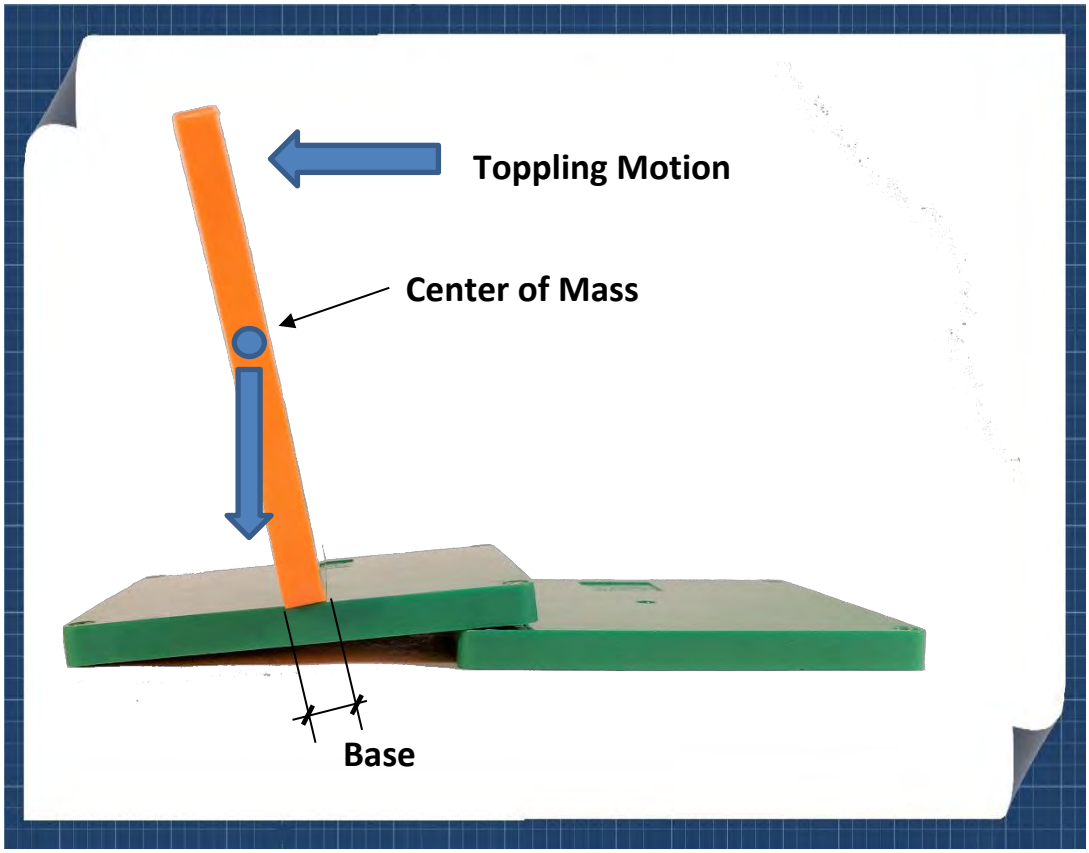
Middle:

- Move around from child to child, making specific comments on what you see children doing.
- Ask them to count the number of “pages” in their book.
- Once the book is finished, help them write a title and name on the cover.
- Ask them to “read” the book to you and/or a friend.

End:

- Books can be temporarily put on display for parents in book form, or as story boards.
- Alternatively, give children a three-minute warning.
- After three minutes ask them to take apart their book, remove and store the vinyl clings, and erase any dry erase markings using an eraser or dry cloth.
- Then have them stack the panels for storage.

Stability and Toppling



Objective:

NAEYC Standards:

Day 60

2.F. Curriculum Content Area for Cognitive Development: Early Mathematics

2.F.03 T-P-K Children are provided varied opportunities and materials to categorize by one or two attributes such as shape, size, and color.

2.F.06 P-K a. Children are provided varied opportunities and materials to understand basic concepts of geometry by, for example, naming and recognizing two- and three-dimensional shapes and recognizing how figures are composed of different shapes.

2.G. – Curriculum Content Area for Cognitive Development: Science

2.G.06 P-K Children are provided varied opportunities and materials that encourage them to think, question, and reason about observed and inferred phenomena.

2.G.07P-K Children are provided varied opportunities and materials that encourage them to discuss scientific concepts in everyday conversation.

2.G.08 P-K Children are provided varied opportunities and materials that help them learn and use scientific terminology and vocabulary associated with the content areas.

HighScope KDIs:

E. Mathematics

35. Spatial awareness: Children recognize spatial relationships among people and objects.

38. Patterns: Children identify, describe, copy, complete, and create patterns.

47. Experimenting: Children experiment to test their ideas.

48 Predicting: Children predict what they expect will happen.

49. Drawing conclusions: Children draw conclusions based on their experiences and observations.

50. Communicating ideas: Children communicate their ideas about the characteristics of things and how they work.

Head Start Early Learning Outcomes:

Domain: Mathematics Development

Goal P-MATH 9. Child identifies, describes, compares, and composes shapes.
Goal P-MATH 10. Child explores the positions of objects in space.

Domain: Scientific Reasoning

Goal P-SCI 5. Child plans and conducts investigations and experiments.
Goal P-SCI 6. Child analyzes results, draws conclusions, and communicates results.

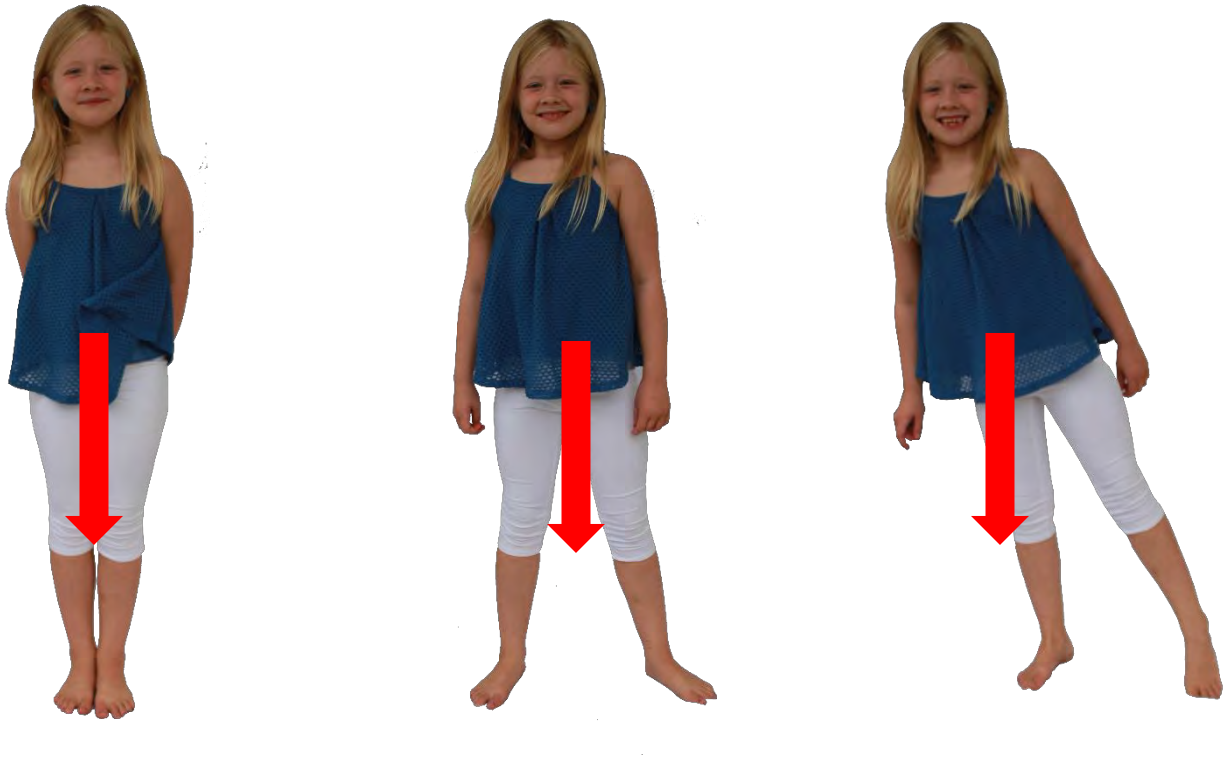
Materials:

For each child:

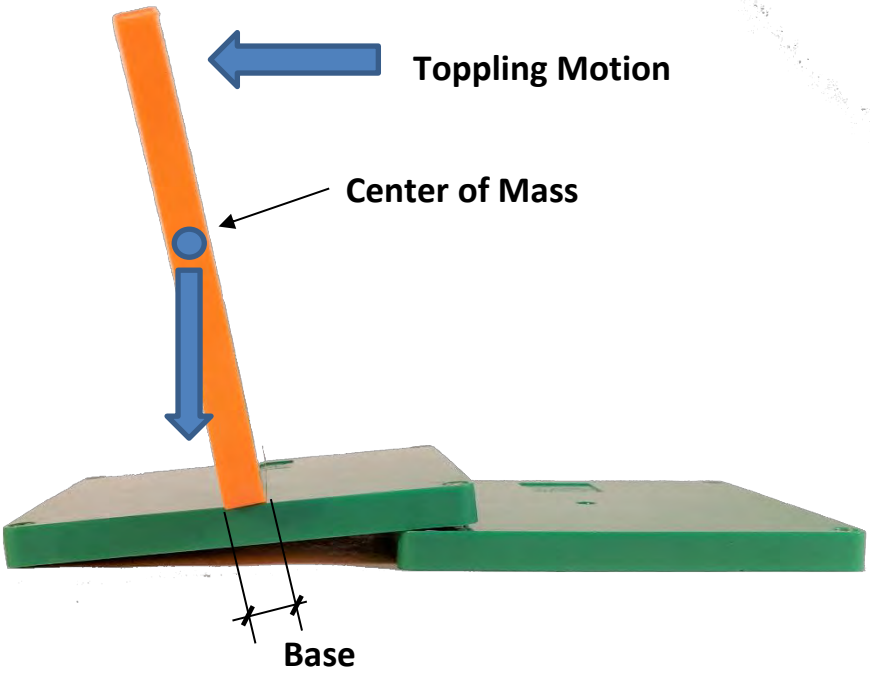
- 8 to 10 Square Magnetic Blocks

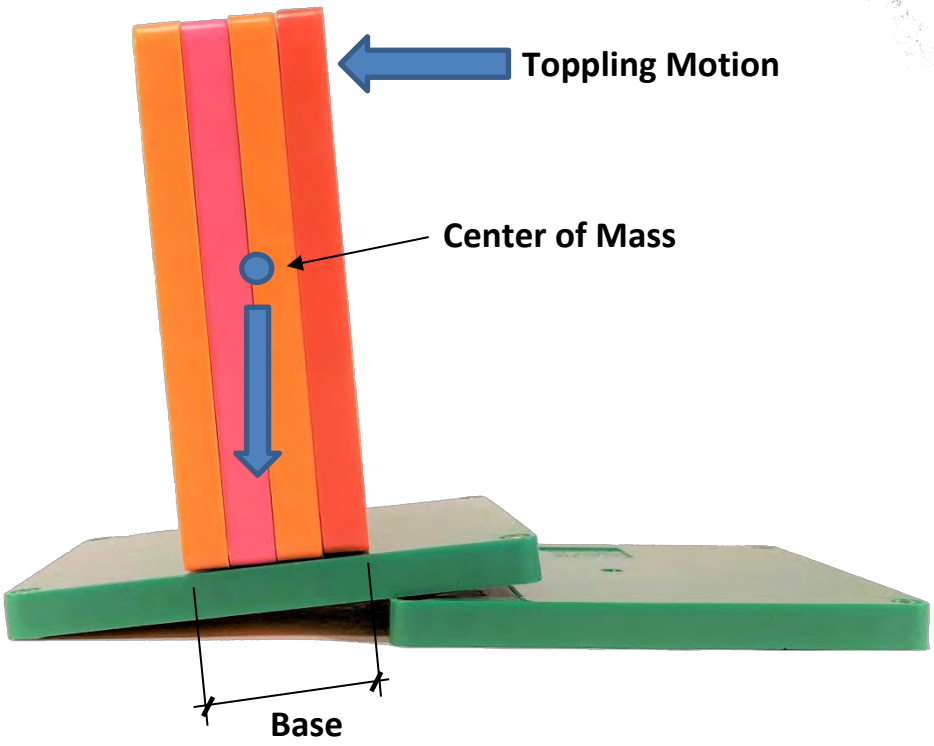
Beginning:

- Ask children if they know what stability is (an object can resist falling over when its center of mass is above its base).
- To illustrate, let them know that their center of mass is near their belly button (navel) and ask the children to stand with their feet together while leaning from side-to-side. Next have them stand with their feet shoulder width apart and have them lean side-to-side.



- Ask them which way of standing makes them more stable.
- Demonstrate stable blocks versus unstable blocks as in the figure below.
- Challenge them to construct square and triangular polyhedrons and have them predict which shape is more stable.





Middle:

- Move around from child to child, making specific comments on what you see children doing. Ask them to build vertical columns of varying heights and have them predict and test how column height affects stability.
- Once the neighborhood is finished give the children time for imaginative play with the vinyl clings, figures and any other toys that may enhance the imaginative play experience.

End:

- Ask each child to explain what factor(s) affect the stability of objects.
- Give children a three-minute warning.
- After three minutes ask them to take apart and stack the magnetic building pieces for storage.

Thank you for joining us!

Spatial and mathematical skills are vitally important for success in STEM careers. Because spatial skills are foundational to mathematics learning, spatial instruction has become a priority in early education. (NCTM, 2007)

Panelcraft™ was designed by an architect and a physics teacher to inspire spatial development and creativity in children

It develops both fine and gross motor skills, patterning, shape recognition, collaboration and building skills

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