

Unit Meeting 4

Preparing to Teach Unit Five: Pattern Blocks, Polydrons & Paper Quilts

Recommended Timing

1 hour in late February (Can be combined with Meeting 5, Preparing to Teach March Number Corner, if you have at least 2 hours to meet.)

Materials You'll Need for the Meeting

Each teacher will need to bring:

- Teachers Guide Volume Three
- Getting Started
- State Supplement (You would have received one in your Bridges kit if this applied to you.)
- pen
- notebook
- sticky notes

The group will need:

- this guide, 1 copy for each teacher
- 1 set of pattern blocks
- Unit Five Skills Across the Grade Levels (Sheet U4.1), 1 copy for each teacher
- Investigating the Math in Unit Five (Sheet U4.2), 1 copy for each teacher
- Pattern Block Puzzles & Cube Nets (Sheet U4.3), 1 copy for each teacher
- Instruction & Assessment of Key Unit Five Learning Objectives (Sheet U4.4), 1 copy for each teacher
- Sharing Responsibilities for Unit Five (Sheet U4.5), 1 copy for each teacher

Part I: Reviewing Roles & Agenda (3 minutes)

Begin the meeting by looking over the agenda on the next page, making sure to note the purpose of each section. Follow these recommendations as much as possible in order to accomplish the goals of the meeting in about an hour. If you have more than an hour, take a moment now to identify those parts of the meeting where you'd like to spend more time. Also review who is playing the role of timekeeper, recorder, and facilitator for this meeting.

Note that in this meeting you will review the math concepts addressed in this unit instead of discussing successes, challenges, and solutions as you have in past meetings. You will return to successes and challenges in the next meeting.

Part	Time	Purpose
I Reviewing Roles & Agenda	3 minutes	Clarify group members' roles and review what will happen in today's meeting.
II Looking at the Unit Planning Guide	3 minutes	Develop a big picture of the unit.
III Exploring Unit Five	5 minutes	Locate resources in the Teachers Guide that will be helpful as you plan for and teach the unit.
IV Reading the Unit Five Introduction	10 minutes	Deepen your understanding of the big mathematical ideas in the unit, as well as the flow of the instruction and assessment.
V Getting into the Math of Unit Five	17 minutes	Prepare to teach the key learning objectives in this unit by doing some math and investigating the concepts more deeply.
VI Completing the Instruction & Assessment of Key Learning Objectives Chart	15 minutes	Identify when the most important learning objectives in the unit will be taught and assessed.
VII Sharing Advance Preparation Responsibilities	7 minutes	Share responsibilities for preparing to teach the unit among group members and determine the place, date, and time for your next meeting.

Part II: Looking at the Unit Planning Guide (3 minutes)

Note *If you received a state supplement in your Bridges kit, it is very important to use the planner and activities included with that supplement.*

Turn to page 598 in the Teachers Guide and mark it with a sticky note tab labeled “Unit Five Planning Guide” so that you can find this planning guide quickly. Spend a minute or two looking over the Unit Five Planning Guide and then discuss how you can use the information it provides to plan your instruction for the unit. The questions below may help structure your discussion.

- In which sessions will you introduce new Work Places?
- Which Work Places introduced in Unit Three will students use at the beginning of this unit?

Part III: Exploring Unit Five (5 minutes)

Use the chart on the next page to locate and skim several important sections of the Teachers Guide and Getting Started that will be helpful as you plan for and teach Unit Five. We recommend bookmarking each page with a sticky note so it is easy to find the information again. You'll be able to find what you're looking for even more quickly if you label each sticky note. Take some time now to tape or staple Unit Five

Skills Across the Grade Levels (Sheet U4.1) into your Unit Five Introduction, perhaps close to the Unit Five Planning Guide on page 598.

Grade 1 Unit Five Helpful Resources		
Page Numbers	Resource	Description
Bridges Teachers Guide, volume 3		
582 & 583	What's the Big Idea?	Explains the main purpose of the unit and the rationale behind how the big ideas are taught.
591–594	Pattern Blocks & Mini Quilts: Computer Work Places	Describes the computer-based Work Places featured in this unit and explains how they are used.
600–603	Work Places 4 Setup	Shows all Work Places introduced in Unit Two and specifies in which Session each is introduced, as well as the materials you'll need to place in the Work Place basket. This resource can help you plan ahead for upcoming Work Places throughout the unit.
731–736	Individual Interviews	Provides information about the two interviews you can use toward the end of this unit to assess your students' skills with identifying and describing shapes, as well as spatial problem solving.
Getting Started		
30	Unit Five: Pattern Blocks, Polydrons & Paper Quilts	This paragraph provides advice about which sessions to leave out if you feel like you're taking too long to get through the unit.
50–53	Advice about Work Places	Provides advice about managing Work Places. It may be helpful to revisit this information after not doing Work Places during Unit Four.

Part IV: Reading the Unit Five Introduction (10 minutes)

Read the Unit Three Introduction in silence (Teachers Guide pages 581–597). As you read, consider these questions and make notes if you like:

- What are the learning objectives for your students? What do you want students to know and be able to do by the end of the unit?
- As you are teaching the unit, what assessment tools and opportunities will you use to determine whether students are meeting the learning objectives?

If you finish reading the introduction before the other members of the group, spend the rest of this time skimming the sessions in the unit.

Part V: Getting into the Math of Unit Five (17 minutes)

The Curriculum Focal Points released in 2006 by the National Council of Teachers

of Mathematics recommend that first graders compose and decompose geometric shapes in order to develop an understanding of part-whole relationships and of the properties of related geometric shapes (e.g., of triangles and rectangles). In this unit, students will compose and decompose shapes with pattern blocks, polydrons, and other geometry manipulatives. They will also sort and identify a variety of 2- and 3-dimensional shapes to investigate their properties, the relationships among them, and the geometric vocabulary used to describe and classify them.

For the next 15 to 20 minutes, you'll use Sheets 4.2 and 4.3 to guide your exploration and discussion of a few problems featured in this unit. Approaching these problems with your students' perspectives in mind will help prepare you to guide them toward a deeper understanding of beginning geometry.

Part VI: Completing the Instruction & Assessment of Key Learning Objectives Chart (15 minutes)

As a group, read the paragraph at the top of the Instruction & Assessment of Key Unit Five Learning Objectives sheet (Sheet U4.4). Then work together to identify when each of the three learning objectives is taught. Be sure to include Problems & Investigations (the whole group lessons) and Work Places (partner games and activities).

Then, work together to identify the assessments that will allow you to determine whether every student in your class has met these three learning objectives. Remember to consider both formative and summative assessments, and don't limit your list to formal assessments: also consider opportunities for observation and other informal assessments.

Part VII: Sharing Advance Preparation Responsibilities (7 minutes)

Use the Sharing Responsibilities chart to assign advance preparation tasks to specific group members. For example, one person might take responsibility for running copies of all the blacklines, while someone else agrees to run copies of all the assessment blacklines. If you have reliable parent volunteers or an assistant, you could also use this list to identify what they can do to help you.

Assign one person to photocopy and distribute finished copies of all the work products from this meeting. This will ensure that everyone has a record of the agreements you reached in this meeting. Also establish the date, time, and location of your next meeting.

Sheet U4.1 Unit Five Skills Across the Grade Levels (Part III)

The table below shows the major skills and concepts addressed in Unit Five. It is meant to provide a quick snapshot of the expectations for students' progress during this unit, as well as information about how these topics are addressed in Bridges Kindergarten, elsewhere in Grade 1, and also in Grade 2. The Competencies & Experiences chart in Getting Started (pp. 91–96) provides more information about how the skills and concepts in each content strand are addressed through the grade levels.

MAJOR SKILL/CONCEPTS ADDRESSED IN UNIT FIVE	GRADE K	GRADE 1, UNIT 5	ELSEWHERE IN GRADE 1	GRADE 2
Generate at least 5 or 6 different ways to sort a collection of objects and describe the groups formed using categorical labels	I	D	Units One, Two, and Four October Number Corner	M
Recognize, describe, and compare a variety of 2- and 3-dimensional shapes	I	D	March Number Corner	D
Classify 2-dimensional shapes by the number of sides and vertices	I	D		M
Use proportional and spatial reasoning to compose and decompose shapes into larger and smaller shapes (e.g., use 6 triangles to compose a hexagon)	I	D	Unit Six November, January, and April Number Corner	D
Explore flips and rotations	N/A	I		D
Recognize lines of symmetry and create shapes with lines of symmetry	N/A	I		D
Locate positions on a coordinate grid	N/A	D	Units One and Six	D
Give and follow directions about location using the words <i>diagonal</i> , <i>horizontal</i> , and <i>vertical</i>	N/A	I		D

I – Skill or concept is introduced or re-introduced.

D – Skill or concept is developed.

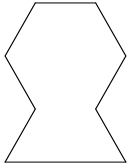
M – Skill or concept is expected to be mastered.

R/E – Skill or concept is reviewed, practiced, and/or extended to higher levels.

N/A – Skills or concept is not addressed.

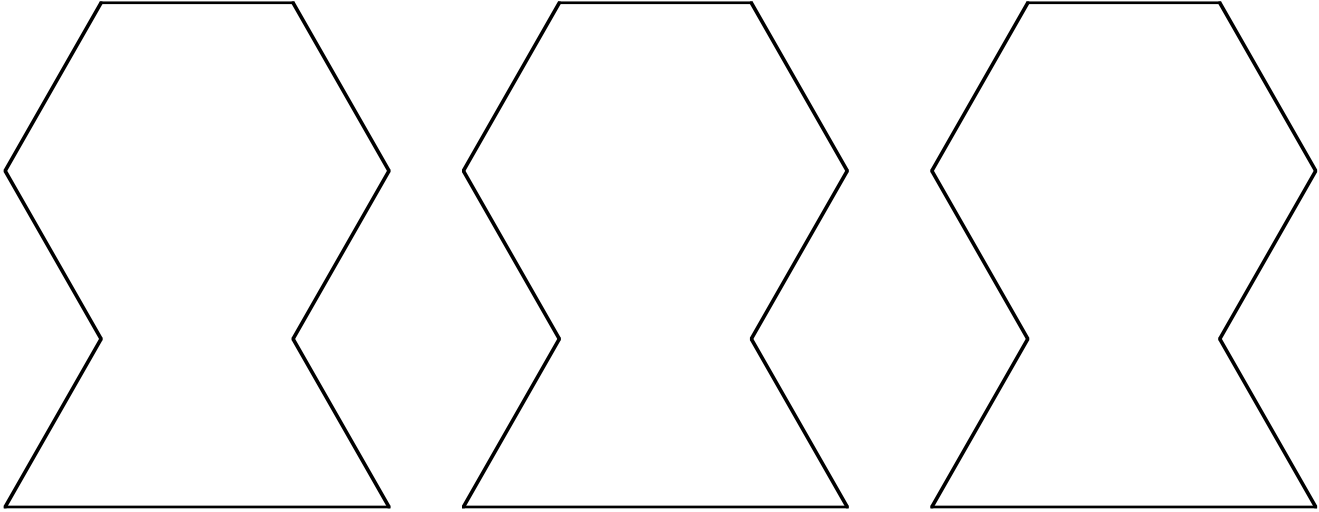
Sheet U4.2 Investigating the Math in Unit Five (Part V)

For each prompt, follow the sequence of activities from left to right. Do the activity or problem, read the specified passages in the Teachers Guide, and then discuss the question(s). Take notes in the right-hand column. You can be flexible in deciding which questions to discuss (or address your own questions).

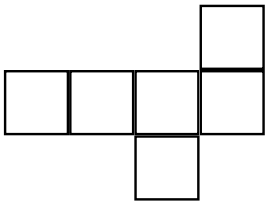
	DO	READ	DISCUSS	NOTES
Prompt 1	<p>Try to imagine how your students would solve this pattern block puzzle from Session 4.</p>  <p>On Sheet U4.3, record 3 different ways to make this shape with pattern blocks.</p>	<p>Answer key and dialog on p. 633</p>	<ul style="list-style-type: none"> • If a student were able to see many ways to solve this puzzle, what could you do to make the activity more challenging to her? • What could you do to help students see many ways to solve this puzzle? For example, if a student can only imagine using a hexagon and a trapezoid, what could you do to help him think of other ways? 	
Prompt 2	<p>Work together to solve this riddle from Session 19, which students will solve by eliminating shape cards after each clue:</p> <ol style="list-style-type: none"> 1. My shape has more than 3 sides. 2. My shape has fewer than 6 sides. 3. My shape has 4 corners. 4. One side of my shape is longer than the other 3 sides. <p>Can you guess my shape?</p>	<p>Small page with answer on p. 722</p>	<ul style="list-style-type: none"> • Aside from learning the name of this shape (and its properties), what do students learn from solving this and other riddles? (See Session 16 for more ideas if needed.) 	
Prompt 3	<p>Look at the nets on Sheet 4.3 and circle which ones will make cubes when folded. Talk to each other about how you can tell.</p>	<p>Answer key on p. 660</p>	<ul style="list-style-type: none"> • How can you tell immediately that a net will <i>not</i> form a cube? • What do the nets that form cubes have in common? • How might working with the polydrons help you make generalizations about nets that form cubes and nets that do not? 	

Sheet U4.3 Pattern Block Puzzles & Cube Nets (Part V)

Use pattern blocks or sketches to show 3 different ways to solve this pattern block puzzle from Session 4.

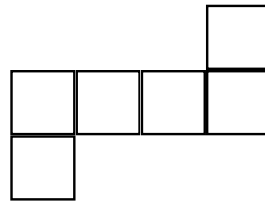


Circle yes or no to show whether or not you think each net will form a cube.



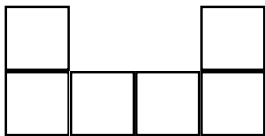
Yes

No



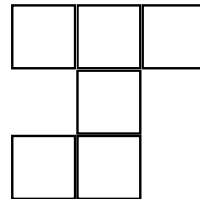
Yes

No



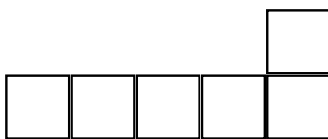
Yes

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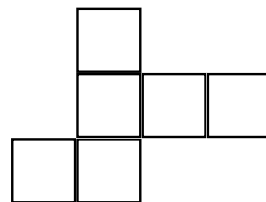
Yes

No



Yes

No



Yes

No

Sheet U4.4 Instruction & Assessment of Key Unit Five Learning Objectives (Part VI)

This unit addresses many important skills and concepts. The three skills on the chart below are arguably the most critical. Record when each skill is taught and assessed; some information is filled in for you as an example. Keep in mind that Work Places provide recurring opportunities for instruction, practice, and assessment of key skills; and try to identify both formative and summative assessments for each skill.*

Learning Objective	Instruction of Learning Objective	Assessment of Learning Objective
1. Recognize, describe, and compare a variety of 2- and 3-dimensional shapes	Key Sessions	Key Sessions and/or Assessments
	Work Places	Work Places
Additional instruction and practice in March Number Corner.		
2. Classify 2-dimensional shapes by the number of sides and vertices	Key Sessions	Key Sessions and/or Assessments
	Work Places	Work Places
No additional instruction in the rest of Grade 1.		
3. Use proportional and spatial reasoning to compose and decompose shapes into larger and smaller shapes (e.g., use 6 triangles to compose a hexagon)	Key Sessions 3 Last Shape In Wins	Key Sessions and/or Assessments
	Work Places	Work Places
Additional instruction and practice in Unit Six and November, January, and April Number Corner.		

Sheet U4.5 Sharing Responsibilities for Unit Five (Part VII)

Note If a State Supplement was included with your Bridges kit, you'll need to adjust this list if some original sessions are being replaced with supplement sessions. You'll also need to add to this list if you are not using the Deluxe Bridges kit.

Task	Team Member	Date Due to Others
1. Run and distribute copies of the completed master copies of the Instruction & Assessment of Key Unit Five Learning Objectives sheet and this Sharing Responsibilities for Unit Five sheet. Provide your principal with a copy of any sheets she or he has requested.		
2. Prepare for and host Meeting 5. This involves some prep work (e.g., copies).		
3. Run copies of Blacklines 1.17–1.22 and 5.1–5.23 for each classroom according to copy instructions at the top of the blacklines.		
4. Run a class set of Assessment Blacklines A 5.1–5.3 for each classroom.		
5. Prepare a class set of Home Connections 11–14 for each classroom using Blacklines HC 11.1–14.3.		
6. To prepare for making mini-quilts in Session 12, cut out the following pieces of construction paper for each classroom: first color: two or three 9"-by-12" sheets cut into 1" squares second color (or gift wrap or painted paper): two or three 9"-by-12" sheets cut into 1" squares		
7. Collect real-world objects in the following shapes for use in Session 7. Find as many of each kind of shape as you can. Cubes: <i>dice, blocks</i> Rectangular prisms: <i>boxes of all kinds</i> Cylinders: <i>cans, tennis ball containers, poster tubes</i> Sphere: <i>ball, orange</i> Triangular prism: <i>prism for reflecting light, packaged food container, example built with polydrons, geoblock borrowed from Grade 2 or Grade 3</i> Pyramid (Any base shape is fine.): <i>packaged food container, example built with polydrons, geoblock borrowed from Grade 2 or Grade 3</i>	If all team members do this, you'll get a better variety of objects. Be sure to keep track of what you have collected, though, to make sure you have examples of all shapes.	
8. Briefly look over Sessions 7, 12, and 20 to get a sense of what you'll need to prepare in advance to conduct them. Then highlight these sessions on your Unit Five Planning Guide to remind yourself that they require advance preparation.	Each teacher will do this independently.	N/A
9. If you plan to use the computer Work Places, get familiar with the software provided in your Bridges kit and make sure it is set up on your classroom computer so that students can use it during Work Places, starting in Session 1.	Each teacher will do this independently.	N/A