

Integrated Unit of Study: Construction

People construct; one of the defining characteristics of humanity is that we make. We make structures, institutions, rules, ideas, and works of art. Kindergartners are makers. A defining characteristic of kindergarten-aged children is their initiative. They have unique and valuable perspectives about what makes constructions attractive, useful, and fair.

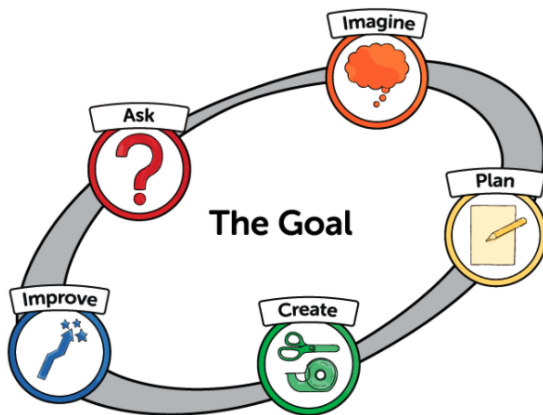
The *Construction* unit invites children to make connections in physical science, engineering, and technology through the building of structures, measurement and comparison, and experimentation with materials. It engages children in a design process that involves imagining and being inspired, asking questions, researching, planning, creating, and improving their models. This process can support the construction of physical structures as well as the building of ideas and works of art.

As the children have grown more capable and confident and teachers have come to know them as individuals and as a group, the classroom community is now better able to generate questions, solve problems, and conduct inquiry. The threads of community and citizenship continue from previous units. Themes of collaboration and group work reemerge from Unit 1, *Our Community*, as children now consider how people collaborate in constructing. The focus on protecting and caring for animals from Unit 2, *Animals & Habitats*, is now extended to consider issues of fairness, equity, and access that arise when something is constructed.

Thus, Unit 3 will unfold in unique and interesting ways in each learning community. A discussion of *The Three Little Pigs* may lead some children to act out their own versions of the story. A dancer who comes to visit may lead a small group to think about creative steps for their own choreography. A letter from an important figure inviting children to envision what would make our Town a fairer and more interesting place for children might inspire children to think about how to get books to everyone across the city. Each teacher will identify a particular path by documenting children's thinking, conversations, and constructions.

All of these possibilities allow children to share their expertise and perspectives with classmates and with the larger community. Our Town and State is replete with fascinating structures, works of art, ideas, and people who design and construct. This unit is focused on cultivating children's identity as citizens with important plans to share.

The following graphic summarizes the Engineering Design Process steps. It will be recreated on a chart during the lessons.



Engineering Design Process

ASK: What am I trying to accomplish? How have others approached it?

IMAGINE: What are some solutions? Brainstorm ideas. Choose the best one.

PLAN: Draw a diagram. Make lists of needed materials.

CREATE: Follow the plan and create something. Test it out.

IMPROVE: What works? What doesn't? What could work better? Modify the design to make it better. Test it out.

Arc of Unit 3: Construction

Big Ideas

- The process of design and construction includes imagining and being inspired, asking questions, researching, planning, creating, and improving our models. This process includes time to work alone and with others.
- Construction can be defined as the creation of products, including physical structures and works of art such as stories, dances, theatrical performances, and songs. The construction process can be similar across domains.
- Through using materials and interacting with them, people learn important concepts and gain skills relating to physical science, engineering and technology, and the arts.
- People’s perspectives depend on culture, history, location, age, and personal views or ideas. All perspectives are valid. Stories help us experience different perspectives.
- People use tools and materials for specific purposes.

Guiding Questions

- **What processes help people construct structures, ideas, and works of art?**
- Where do people find inspiration for building, creating, and composing?
- How do people use different tools and materials for different purposes?
- What suggestions do you have about constructions in our city to make Our Town a fairer and more interesting place for children? What about you, and members of your community, gives you this perspective?

Arc of Unit 3: Construction

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
Centers	<p>Art Table: exploring clay</p> <p>Easel: painting inspired by Our Town</p> <p>Blocks: building inspired by Our Town</p> <p>Dramatization: acting <i>The three Little Pigs</i> 1</p> <p>Library & Listening: making a book inventory</p> <p>Discovery Table: constructing with sand</p> <p>Science & Engineering: observing wood</p> <p>Writing & Drawing: creating construction drawings 1</p>	<p>Art Table: creating clay sculptures</p> <p>Easel: using pastels inspired by Our Town</p> <p>Blocks: working on a stability challenge</p> <p>Dramatization: acting <i>The three Little Pigs</i> 2</p> <p>Library & Listening: researching for inspiration</p> <p>Discovery Table: constructing the pig houses</p> <p>Science & Engineering: testing a raft</p> <p>Writing & Drawing: creating construction drawings 2</p>	<p>Art Table: creating and painting clay sculptures</p> <p>Easel: creating self-portraits 1</p> <p>Blocks: building inspired by Zaha Hadid</p> <p>Dramatization: creating a dance or music studio 1</p> <p>Library & Listening: Researching Architects, Choreographers or Musicians 1</p> <p>Discovery Table: constructing with sand and beautiful stuff</p> <p>Science & Engineering: sanding wood</p> <p>Writing & Drawing: creating choreographies or musical compositions 1</p>	<p>Art Table: Setting up the Our Town Design Studio</p> <p>Easel: creating self-portraits 2</p> <p>Blocks: creating a construction site 1</p> <p>Dramatization: creating a dance or music studio 2</p> <p>Library & Listening: Researching Architects, Choreographers or Musicians 2</p> <p>Discovery Table: acting <i>Night Workers</i> 1</p> <p>Science & Engineering: making particle board</p> <p>Writing & Drawing: creating choreographies or musical compositions 1</p>
Texts	<i>The Three Little Pigs</i>	<i>The True Story of the Three Little Pigs</i>	<i>Homes Around the World</i> <i>The World is Not a Rectangle</i>	<i>The Night Worker</i> <i>Dreaming Up</i>
Writing	Fictional Narrative	Fictional Narrative	Fictional Narrative	Fictional Narrative
Shared Reading	“Popsicles Sticks and Glue”	“If I Could Make a City”	“Who built a home?”	“This is the Way”
Phonics	Follow Guide	Follow Guide	Follow Guide	Follow Guide

Arc of Unit 3

Arc of Unit 3: Construction

	WEEK 5	WEEK 6	WEEK 7	WEEK 8
Centers	<p>Art Table: working in the Our Town Design Studio</p> <p>Easel: painting inspired by <i>Dreaming Up</i></p> <p>Blocks: creating a construction site 2</p> <p>Dramatization: creating dance or music performances</p> <p>Library & Listening: researching for Our Town</p> <p>Discovery Table: acting <i>Night Workers 2</i></p> <p>Science & Engineering: observing trees</p> <p>Writing & Drawing: drawing house plans inspired by <i>How a House is Built 1</i></p>	<p>Art Table: working in the Our Town Design Studio</p> <p>Easel: drafting house and building plans 1</p> <p>Blocks: building inspired by <i>The Little Red Fort 1</i></p> <p>Dramatization: acting <i>The Little Red Fort</i></p> <p>Library & Listening: researching tree house and forts</p> <p>Discovery Table: creating sand forts</p> <p>Science & Engineering: making plywood</p> <p>Writing & Drawing: drawing forts and treehouses</p>	<p>Art Table: working in the Our Town Design Studio</p> <p>Easel: drafting house and building plans 2</p> <p>Blocks: building inspired by <i>The Little Red Fort 2</i></p> <p>Dramatization: acting <i>Roxaboxen 1</i></p> <p>Library & Listening: researching openly</p> <p>Discovery Table: creating <i>Roxaboxen</i></p> <p>Science & Engineering: getting to know paper: paper hunt</p> <p>Writing & Drawing: drawing and writing inspired by <i>Roxaboxen</i></p>	<p>Art Table: working in the Our Town Design Studio</p> <p>Easel: NO ACTIVITY</p> <p>Blocks: building inspired by <i>Roxaboxen</i></p> <p>Dramatization: acting <i>Roxaboxen 2</i></p> <p>Library & Listening: reading with a buddy</p> <p>Discovery Table: exploring soil</p> <p>Science & Engineering: getting to know paper: paper and water</p> <p>Writing & Drawing: creating a book about the many things people can construct</p>
Texts	<i>How a House is Built</i>	“The Little Red Hen” <i>The Little Red Fort</i>	<i>Roxaboxen</i>	<i>Dirt</i> End of Unit Synthesis
Writing	Procedure	Procedure	Procedure	Procedure
Shared Reading	“Construction Worker”	“Construction Vehicles”	“The Generous Little Red Hen”	“Dig in the Dirt”
Phonics	Follow Guide	Follow Guide	Follow Guide	Follow Guide

Unit 3 Read Aloud Texts

Read Alouds

Week	Title, Author
1	<i>The Three Little Pigs</i> , Paul Galdone
2	<i>The True Story of the Three Little Pigs</i> , Jon Scieszka
3	<i>Homes Around the World</i> , Max Morris <i>The World is Not a Rectangle: A Portrait of Architect Zaha Hadid</i> , Jeanette Winter
4	<i>The Night Worker</i> , Kate Banks <i>Dreaming Up: A Celebration of Building</i> , Christy Hale
5	<i>How a House is Built</i> , Gail Gibbons
6	<i>The Little Red Fort</i> , Brenda Maier and Sonia Sanchez
7	<i>Roxaboxen</i> , Alex McClerran and Barbara Cooney
8	<i>Dirt</i> , Natalie Rosinsky

Writing Mentor and Research Texts

Genre	Title, Author
Personal Recount	<i>Fish is Fish</i> , Leo Lionni <i>Big Al and Shrimpy</i> , Andrew Clements & Yoshi <i>Amazing Grace</i> , Mary Hoffman <i>Chrysanthemum</i> , Kevin Henkes <i>The Name Jar</i> , Yangsook Choi <i>Lon Po Po</i> , Ed Young
Procedure	<i>Yoga Pretzels</i> (card deck), Triangle card, Tara Guber and Leah Kalish

Writing: Introduction to Fictional Narrative

Fictional Narrative is a genre that shares many features with Personal Recount. At this point in Kindergarten, children have been exposed to many fictional narratives, so they come with background knowledge about their features. Over five weeks, the class deconstructs mentor texts to learn about their purpose, structure, and language, with a particular focus on character development and how their attributes influence the plot of the story. Children write their own fictional narrative books, to be shared with other students, or another audience chosen by the class/teacher.

Purpose

The **purpose** of writing a fictional narrative is to entertain and to teach about something.

Structure

Fictional Narratives unfold in four stages. The **title** introduces the topic and is interesting, drawing in the reader. The **orientation**, written at the beginning of the narrative, orients the reader to the story. In the orientation, the characters (who) and setting (where and when) are introduced, along with a clue about the problem in the story. The **sequence of events** includes the events leading up to the crisis (big problem), the crisis, and the solution. The **conclusion** of a fictional narrative teaches something, or reflects on how a character has changed.

Language

Children revisit **the third person**, learning that it is used in fictional narrative to tell the character's story (rather than their own).

They learn that fictional narratives are written with **verbs** in the past **tense**, showing that the action of the story has already happened.

They also add **dialogue** to further develop the characters and story.

Mentor Texts

Included in this Unit:

Big Al and Shrimpy, Andrew Clements & Yoshi

Fish is Fish, Leo Lionni

Amazing Grace, Mary Hoffman

Chrysanthemum, Kevin Henkes

The Name Jar, Yangsook Choi

Lon Po Po, Ed Young

Additional Texts to Consider:

Abiyoyo, Pete Seeger (in Unit 1)

Swimmy, Leo Lionni (in Unit 2)

The Three Little Pigs, Paul Galdone (in Unit 3)

The True Story of the Three Little Pigs!, Jon Scieszka (in Unit 3)

The Little Red Fort, Brenda Maier (in Unit 3)

The Great Kapok Tree, Lynne Cherry (in Unit 4)

Vocabulary

adjective: a word or phrase used to describe a person, place, thing, or idea

attribute: a quality or feature of something or someone

audience: an individual or group for whom a piece of writing is composed

character: a person or animal in the story

conclusion: the end

dialogue: conversation between two or more characters

entertain: to interest someone

feedback: specific, helpful suggestions given to improve work

fictional narrative: a genre of writing whose purpose is to entertain and to teach about something

genre: a type of writing

orientation: in a fictional narrative, the text that introduces the characters and setting, and gives a clue about the story's problem

perspective: a way to see or think about something, point of view

plot: the events in a story

problem: a challenge in the story

publish: to prepare writing for an audience

purpose: the reason for doing or creating something

report: a genre of writing whose purpose is to organize information about a topic

revise: make changes to writing

sequence of events: the events in a fictional narrative, which include the big problem and solution

stages: the parts of a piece of writing

tense: the form of a verb related to time

title: the name of a piece of writing

the third person: writing that uses pronouns like *he*, *she*, *it*, or *they*

verb: a word that expresses a physical action, mental action, or state of being

Adapted from Brisk, M.E. (2015). *Engaging students in academic literacies*. New York, NY: Routledge.

Writing: Introduction to Procedure

Building upon knowledge and experiences in Unit 2, children revisit procedure in Unit 3. The class reviews the purpose, structure, and language of procedures before children write their own procedures. Children write procedures for their classmates about how to construct something in the classroom, using materials they have explored during the Construction unit. They may write a procedure for how to build something out of clay, Beautiful Stuff, blocks, or LEGOs, or they may write a choreography for a dance.

Purpose

The **purpose** of procedure is to give directions to accomplish a goal.

Structure and Language

Procedures unfold in three or four **stages**. They begin with a **goal**, which names what the procedure sets out to accomplish. The goal can be included in the title, or written immediately after.

The goal is followed by a list of **materials**. Some procedures, such the yoga poses children examine, do not require a materials list, because the only necessary material is one’s body. **Adjectives** are included in materials lists to specify the number and kind of materials needed. Depending on the audience, lists of materials might be accompanied by images to provide greater clarity.

The materials are followed by the **steps**. In procedure, steps are numbered and follow one another in a list. They are not written in paragraph form. Each step begins with an **imperative verb** and does not include additional words to indicate the subject of the sentence, such as “you.” Steps also do not include connecting words such as “then” and “next.” For example,

1. Sit on your shins, spine straight.
2. Fold forward over your thighs.

Adverbs make steps more precise by describing how and where each action is to be completed.

Some procedures end with a **final comment**, which may include an evaluation of the procedure, or, in the case of science experiments, follow-up questions.

Mentor Texts

Included in This Unit:

Yoga Pretzels by Tara Guber and Leah Kalish: Triangle, River, Bridge
Matching Faces Directions
Wash Your Hands!
How to Make a Pattern Bracelet
“Plant an Avocado”

Vocabulary

accomplish: complete successfully

adjective: a word or phrase used to describe a person, place, thing, or idea

adverb: a word or phrase used to describe a verb

audience: an individual or group for whom a piece of writing is composed

directions: instructions

feedback: specific, helpful suggestions given to improve work

goal: aim; objective; what someone wants to accomplish

imperative verb: verb that gives directions

materials: the items needed to complete a procedure

precise: exact; specific

procedure: a genre of writing whose purpose is to give directions to accomplish a goal

publish: prepare writing for an audience

purpose: the reason for doing or creating something

revise: to make changes to writing

stages: the parts of a piece of writing

steps: the actions taken to complete a procedure

title: the name of a piece of writing

verb: a word that expresses a physical action, mental action, or state of being

Adapted from Brisk, M.E. (2015). *Engaging students in academic literacies*. New York, NY: Routledge.

Our Town Guide

Introduction

Our Town is a series of provocations that engages the classroom community in an authentic construction project. During this four week process, children plan and create a model that addresses the question, **What suggestions do you have to make our town a more fair and more interesting place for children?** Children respond based on their areas of expertise and interest, using the Engineering Design process. Ultimately, as citizens of your town, children share their suggestions to their school and family communities, and possibly beyond.

Big Ideas The design and construction process includes imagining and being inspired, asking questions, researching, planning, creating, and improving our models. Children have time to work alone and with others. Through using materials and interacting with them, people learn important concepts and gain skills relating to physical science, engineering and technology, and the arts. People’s perspectives depend on culture, history, location, age, and personal views or ideas. All perspectives are valid. Stories help us experience different perspectives.	Guiding Questions What processes help people construct structures, ideas, and works of art? What suggestions do you have about constructions in our city to make our town a fairer and more interesting place for children? What about you, and members of your community, gives you this perspective?
	Text Connections <i>The Three Little Pigs</i> <i>Homes Around the World</i> <i>The World is Not a Rectangle</i> <i>Dreaming Up</i> <i>How a House is Built</i> <i>The Little Red Fort</i> <i>Roxaboxen</i>

The Final Product

The final product of the *Our Town* project is one collaboratively constructed three-dimensional model that depicts the children’s idea(s) of what would make the city a more fair and interesting place for children.

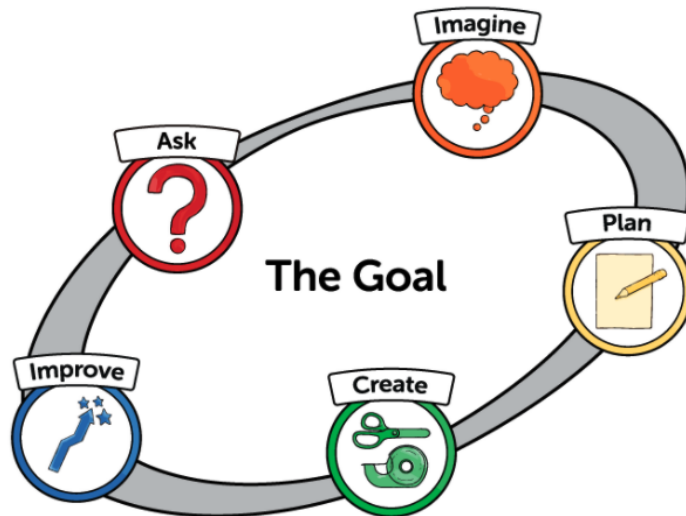
The Activities

Over the course of four weeks, work takes place during Intro to Centers whole group meetings, in Centers, and in Thinking and Feedback sessions. According to the Engineering Design Model, the activities follow five steps.

- **ASK:** *Our Town* begins with an invitation to the children from an important figure to

suggest constructions that could improve our city.

- **IMAGINE:** Motivated by this invitation, children brainstorm ideas, analyze data, and determine a class focus.
- **PLAN:** Children make plans for individual and whole group work. They gather materials.
- **CREATE:** Children collaborate to build the class model.
- **IMPROVE:** Children and adults offer feedback on the model's parts and whole, and this is used to refine the project.



Children engage with the project in multiple ways, lacing through days and components. Their work is individual and collaborative, discussing and working in both small and large groups. Not every child will necessarily engage in every part of the project. Rather, children will participate actively in specific aspects of the work and act as critical reviewers for the work others are leading. For instance, a child who is a masterful builder might provide feedback in the planning process and then help to construct the physical model. A child who has demonstrated consistent interest in making visual art might support research about the ideas the model is intended to represent and lead the selection of art media and painting. The choreography of the entire project is one of moving between hands-on activity and discussion (reflection, feedback, text-based inquiry), between small groups and the whole class, between offering ideas and listening to the contributions of others—all to arrive at a cohesive, mutually satisfying model in which each child feels a meaningful part.

Small Groups



Small group work is critical in the evolution of this project. Pre-assign the members of these groups and task each group with specific roles. Place children in groups according to their documented interests, skills, and social interactions. Ensure that each child is a part of at least one small group. Propose the groups to the children and ask for their feedback. Also, allow for

fluidity once the groups have launched, in response to the evolving work and children’s needs and contributions. Suggested groups are:




- Planning Group
- Feedback Group
- Building Group
- Decoration Group
- Labeling Group
- Presentation Group

Timeline

More specific guidance is found in each week’s Centers lessons.

Weeks 1-3: Plan and prepare		
<p>Gather materials: paper, cardboard boxes, Beautiful Stuff, clay, paint, adhesives</p> <ul style="list-style-type: none"> ● Use the Entry Point Tool to observe and record children’s questions, interests, and misconceptions. This documentation will help identify meaningful entry points to the project and could support the formation of small groups. ● Replenish the Beautiful Stuff collection; send home letters to families to collect more Beautiful Stuff, including cardboard and boxes. ● Map out a timeline for developing the <i>Our Town</i> project according to the particular school and classroom context. ● Learn more about the area where the school is located and the neighborhoods where children live. Consider the special people, places, and landmarks that are part of these neighborhoods. ● Print the <i>Our Town</i> letter, place it in an envelope, and address it to the class. 		
Week 4	Teacher Preparation	
 <p><i>Whole Group</i> The letter is read aloud.</p> <p><i>Design Studio</i> (formerly the Art Studio) Children brainstorm ideas individually and/or in small groups.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Transform the Art Studio into a Design Studio. <input type="checkbox"/> Gather documentation to create vision boards. 	
Week 5		
 <p><i>Design Studio</i> Children narrow the options and select a theme. Children make individual plans.</p> <p><i>Library and Listening</i> Children research how they might build the</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Based on the initial brainstorm, note emerging trends in children’s ideas. <input type="checkbox"/> Identify and invite experts. <input type="checkbox"/> Make initial assignments for 	

Unit 3 Introduction: Our Town

	model.	small groups.
Week 6		
	<p><i>Design Studio</i> Inspired by “The Boys City,” children make a master plan and propose it to the large group.</p> <p><i>Expert Visits</i> Children rehearse interviews. During the visits, children gather feedback about their plan and revise, if needed.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Decide on groupings of children. <input type="checkbox"/> Prepare interview questions for expert visits.
Week 7		
	<p><i>Design Studio</i> Children construct the model and collect feedback about the model.</p> <p><i>Expert Visits</i> Children rehearse interviews. During the visits, children gather feedback about their plan and revise, if needed.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Gather necessary materials. <input type="checkbox"/> Prepare interview questions for expert visits.
Week 8		
	<p><i>Design Studio</i> Children revise their work.</p> <p><i>Celebrate!</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Coordinate with colleagues to schedule and plan a celebration.

Note: detailed lessons are embedded in the Center activities.

Resources:

“More Basketball” example

Weeks 1-3: Entry Point Tool [provided as a PDF and editable word document]

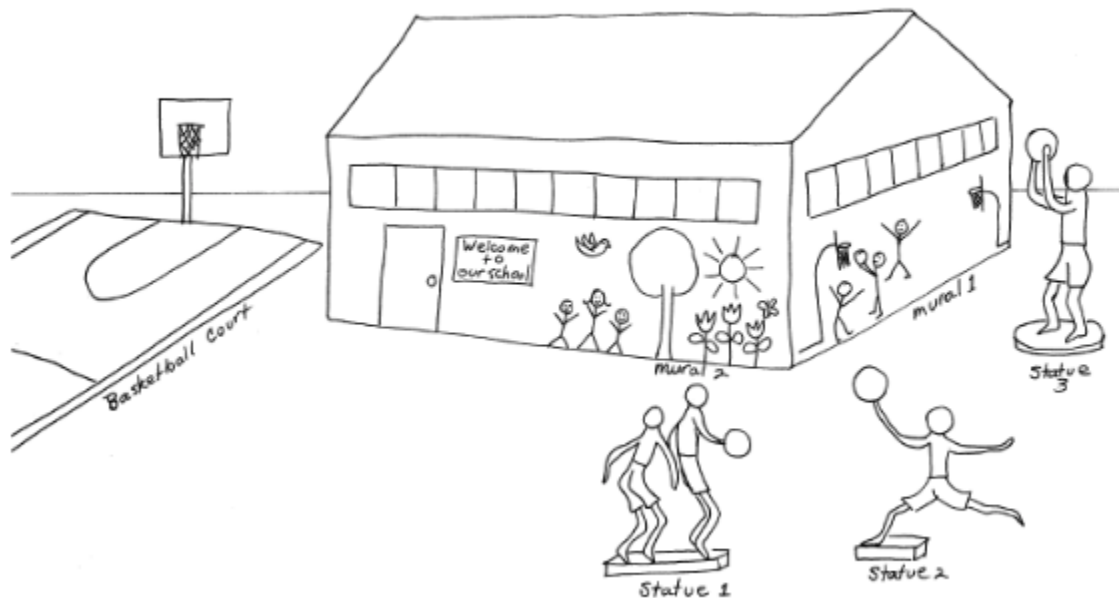
Week 4: Letter from the important figure, Our Town Initial Ideas sheet

Week 5: Our Town Individual Plan sheet

Week 6: “The Boys’ City” visual essay, Small Group Planning Sheet

“More Basketball” example

Josiah is one of the more shy children in the class. His teacher, Ms. Lico, hopes that he will show more engagement in the curriculum and that he will begin to share his ideas with the group. Josiah often wears a Boston Celtics hat. Outside, he plays basketball when it is available. Ms. Lico notes ‘basketball’ as an entry point for *Our Town*. When working in small groups to envision how to improve their town, Josiah is stymied, sitting with a dispirited look in front of a blank piece of paper. Ms. Lico prompts him, “I’ve noticed you really like basketball. Is there something about basketball you want to suggest?” Josiah responds immediately, “More basketball!” and starts drawing several people with numbers on their shirts. Josiah explains that they are playing hoops. Several other children are also fascinated by basketball; “More Basketball” is therefore one of the themes the class decides to include in the *Our Town* model. Several days later, Josiah conducts research in the library, looking through publications about basketball that families have sent in. He notices a photograph of the Bill Russell statue, and asks to share this with the class. Seeing the picture of the statue, Ilana suggests, “Maybe we can put statues of basketball players all around our town...”



Entry Point Tool

Use this tool to identify and record points of entry for each child to the *Our Town* project, including related interests and strengths as members of the learning community. Use this information to strategically plan small groups.

Child's Name	Entry Point/Connection	Contribution to the project
<i>Melissa</i>	<i>family has a community garden plot</i>	<i>keeps small group focused; can offer feedback about model's garden</i>

January 2022

Dear Kindergartners,

My name is _____ and I am the _____. You live in our town and you are some of our most important residents. You have the right to share your ideas about our town.

You are experts on our Town. You know a lot about parks, buildings, and roads that are nearby where you live and around your schools. I hear you are learning about the Engineer Design Process as part of the construction unit. I have a big question for you: **What ideas do you have about construction that could make our town a fairer and more interesting place for children?** It is very important that construction in our town is both fair and interesting for all children.

Think hard about this question and take your time answering it. Do some research. Talk to your classmates, your teachers, and your families. Plan one class construction proposal and remember to think about *why* your idea makes our town more fair and interesting for children. Please create a model that shows your suggestion and write about your idea.

I look forward to learning from you.

Sincerely,