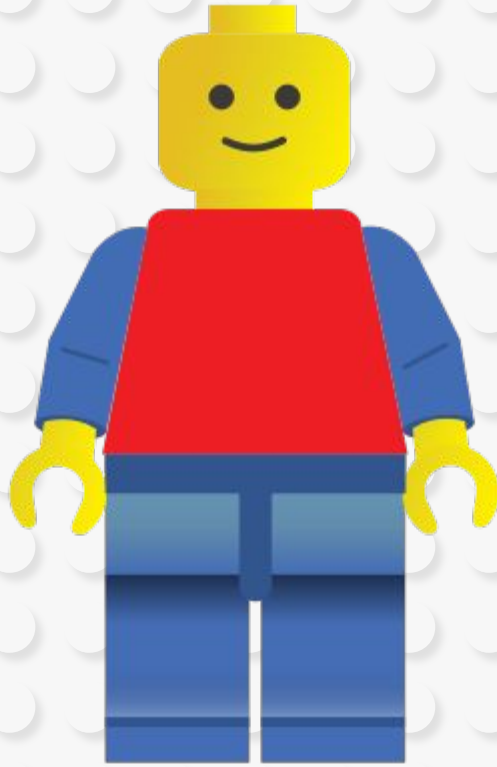




Building 21st Century Skills with Lego Bricks

Farrah Milby, WHES Media Coordinator
Kate Highsmith, WHES Global Inquiry & Design
AKA: Masters Builders



<https://bit.ly/LegoSkills>



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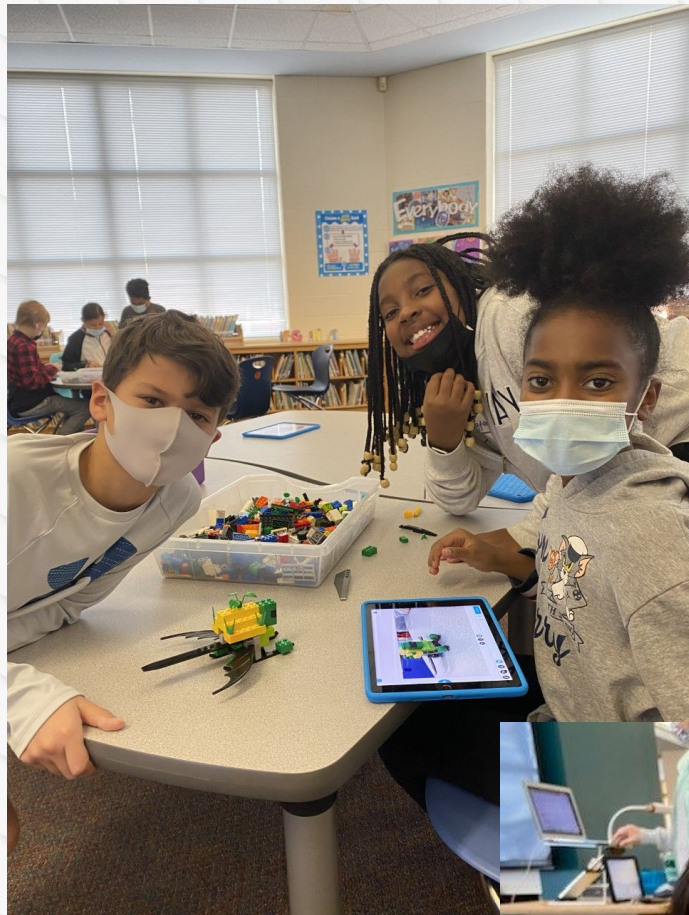
MOTIVATION

**Only through ENGAGEMENT can we
motivate them to participate in the journey!**

Square Wheels™ is a trademark of Performance Management Company

Engagement, Engagement, Engagement

But why Legos? You don't have to just take our word.
See what Forbes has to say about them.



Did we mention there was a Lego trophy involved?!?



Got their attention now!



TV
PG
L



WHAT ARE 21ST CENTURY SKILLS? THESE 4 C's:

C

COMMUNICATION

Sharing thoughts,
questions, ideas &
solutions

C

COLLABORATION

Working together to
reach a goal. Putting
talent, expertise,
and smarts to work

C

CRITICAL
THINKING

Looking at problems in
a new way and linking
learning across
subjects & disciplines

C

CREATIVITY

Trying new approaches
to get things done equals
innovation & invention

Design Process and Inquiry Cycle

- many different types
- be consistent from project to project
 - what works for your students?

THE ENGINEERING DESIGN PROCESS

COMMUNICATE
your solution

ITERATE
to improve
your prototype

TEST
and evaluate
your prototype

DEFINE
the problem

IDENTIFY
constraints on your
solution (e.g. time, money,
materials) and criteria
for success

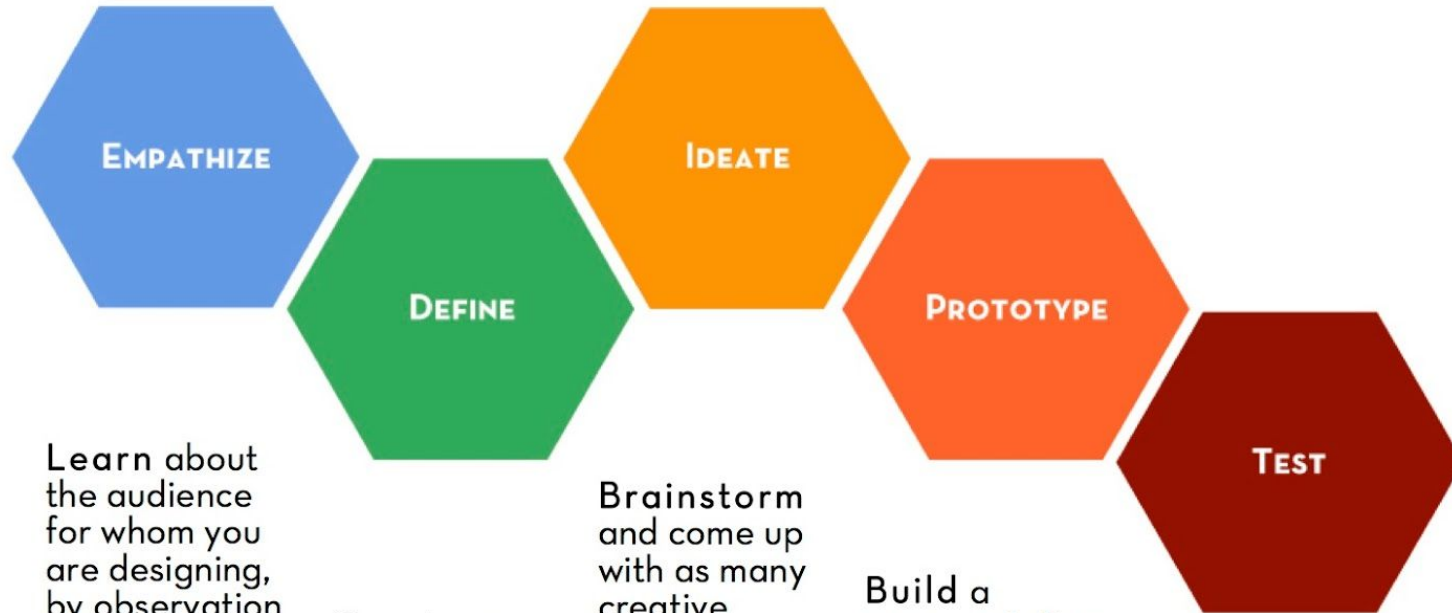
BRAINSTORM
multiple solutions
for the problem

SELECT
the most
promising solution

PROTOTYPE
your solution



We are all DESIGNERS!



Learn about the audience for whom you are designing, by observation and interview.
Who is my user? What matters to this person?

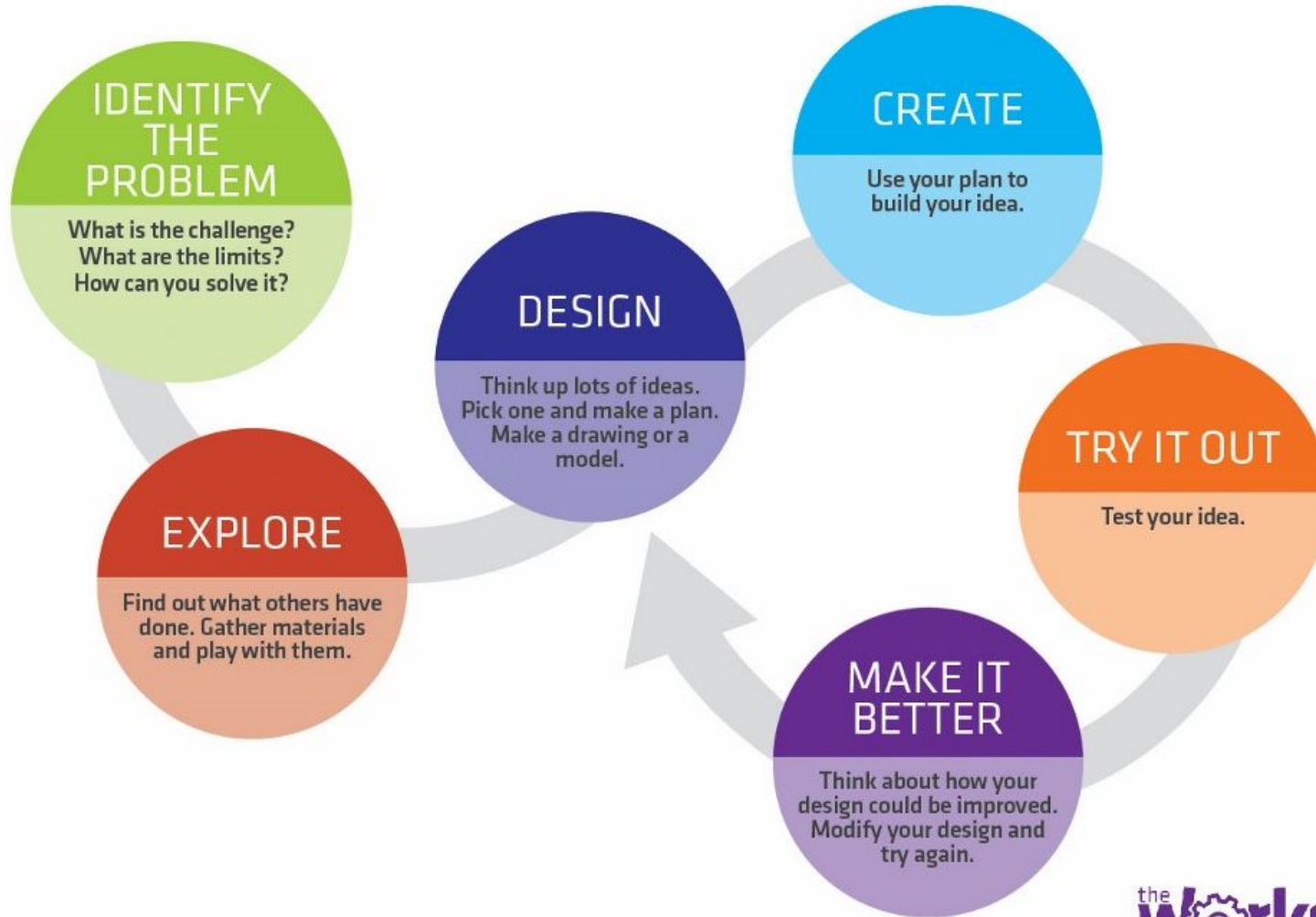
Create a point of view that is based on user needs and insights.
What are their needs?

Brainstorm and come up with as many creative solutions as possible.
Wild ideas encouraged!

Build a representation of one or more of your ideas to show to others.
How can I show my idea? Remember: A prototype is just a rough draft!

Share your prototyped idea with your original user for feedback.
What worked? What didn't?

ENGINEERING DESIGN PROCESS



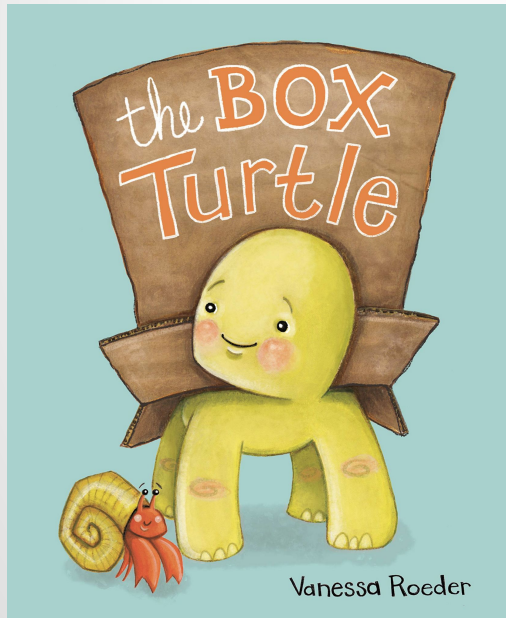
Engineers use the Design Process to create something new or make something better.

Engineering Design Process



Kindergarten Inquiry

Read [The Box Turtle](#)
Vanessa Roeder



Your Date Here

Learn more on
[Epic!](#)



Your Footer Here



Define- build a turtle prototype

Identify- constraints include time limit, materials (legos), topic **Critical Thinking**

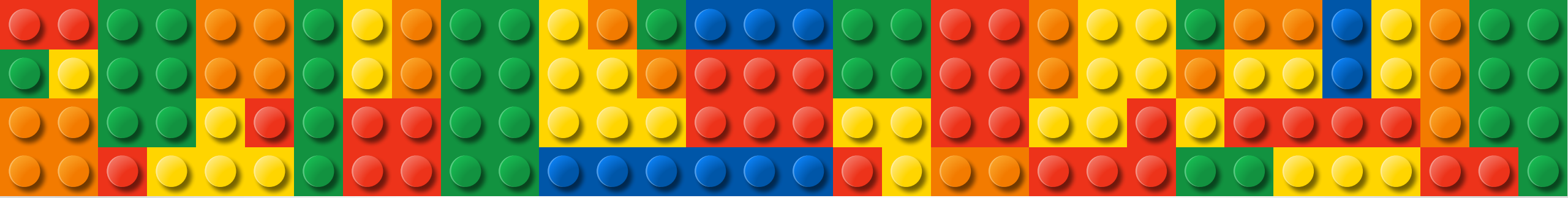
Brainstorm-discuss ideas with your team
Collaborate and **Communicate**

Select-what to build, who does which
part



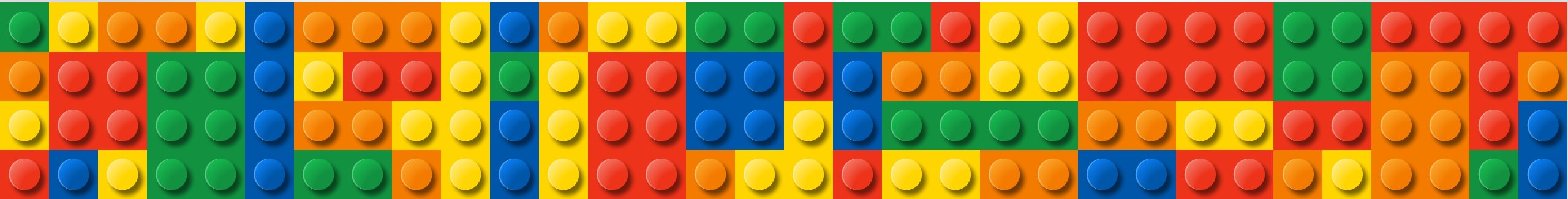
Prototype- build your model **Creativity**





PADLET

https://padlet.com/farrah_milby1/2b3fednia0c4bktq





Test- Does your turtle have the identifying features?

Iterate- If needed, change your turtle.

Critical Thinking

Communicate- share a picture of your turtle in the [Padlet](#). Share as a group.

Communicate

(QR Code, link in Clever, picture station)

Grade Level Examples



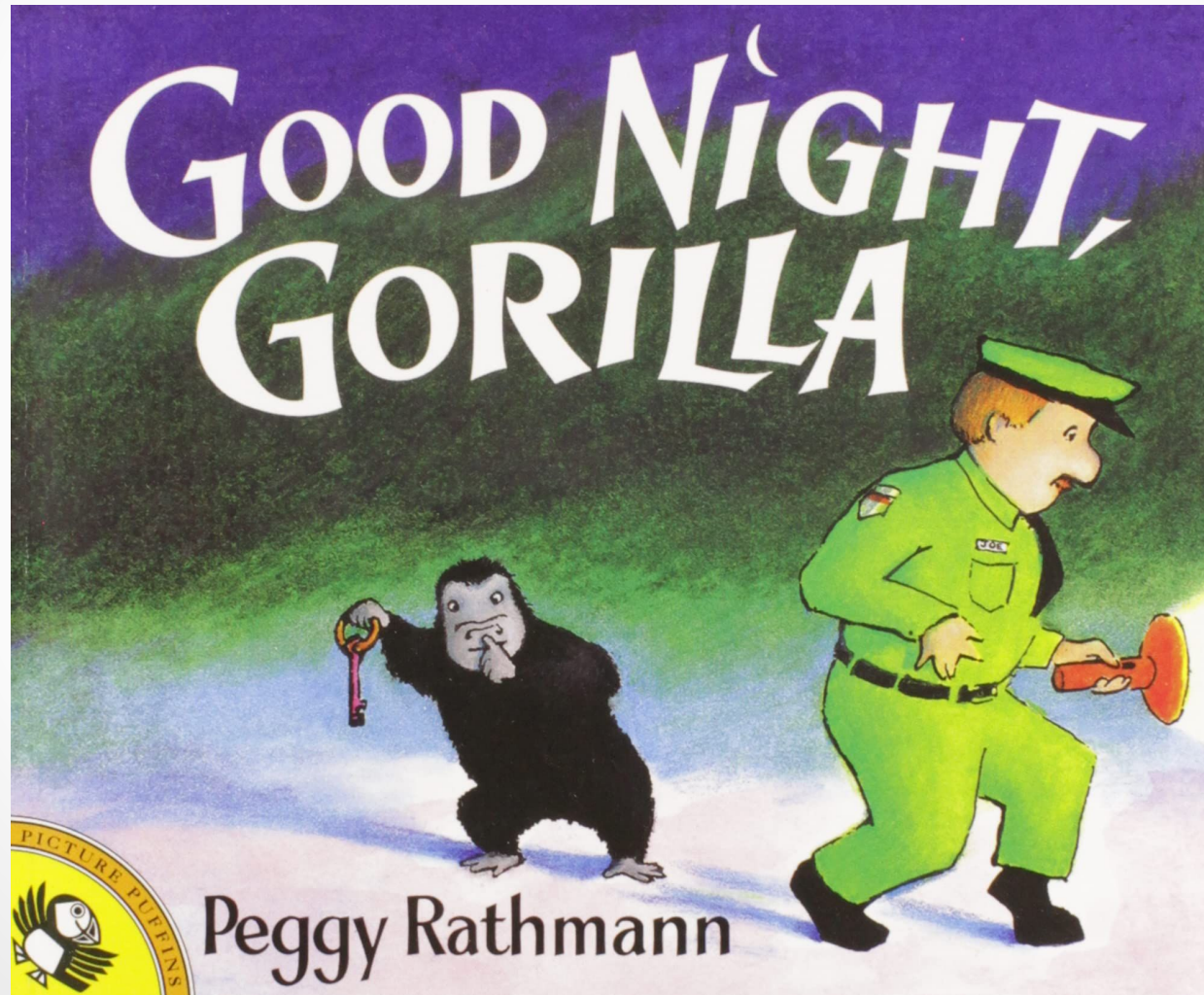
1st Grade-Zoo Animals

What kinds of animals would you find in a zoo.

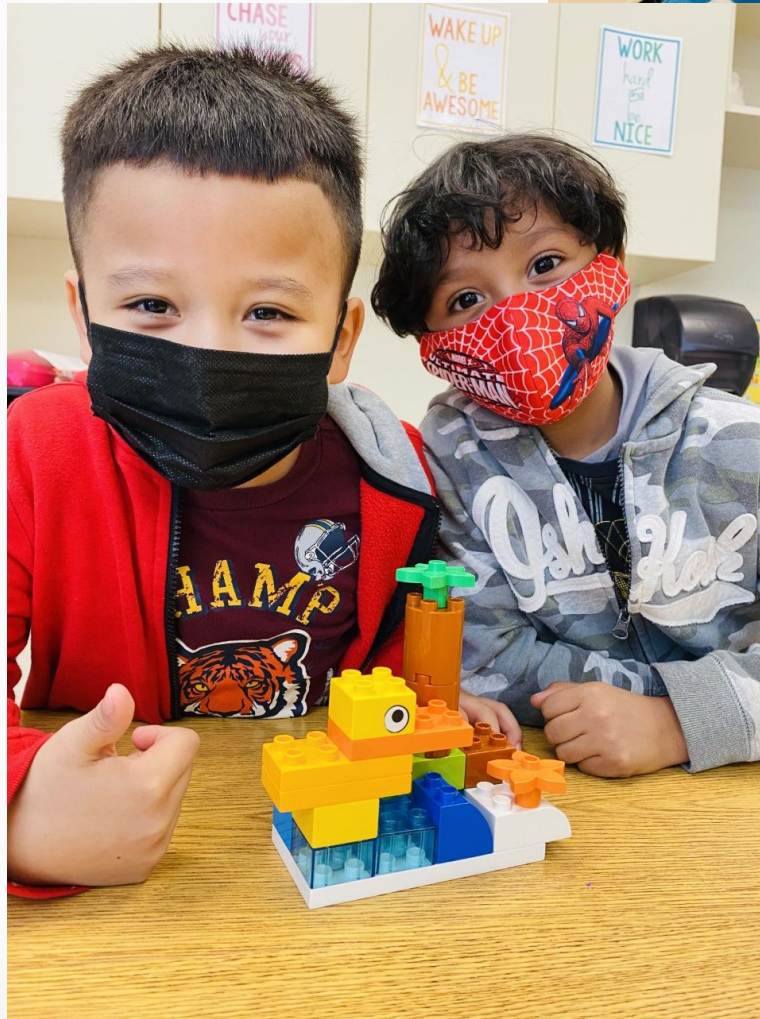
Create a class zoo of these animals.

Text Connection

Good Night, Gorilla by Peggy Rathmann



Student Examples



2nd/3rd Grade-Communities

What kinds of places in a community provides goods and services?

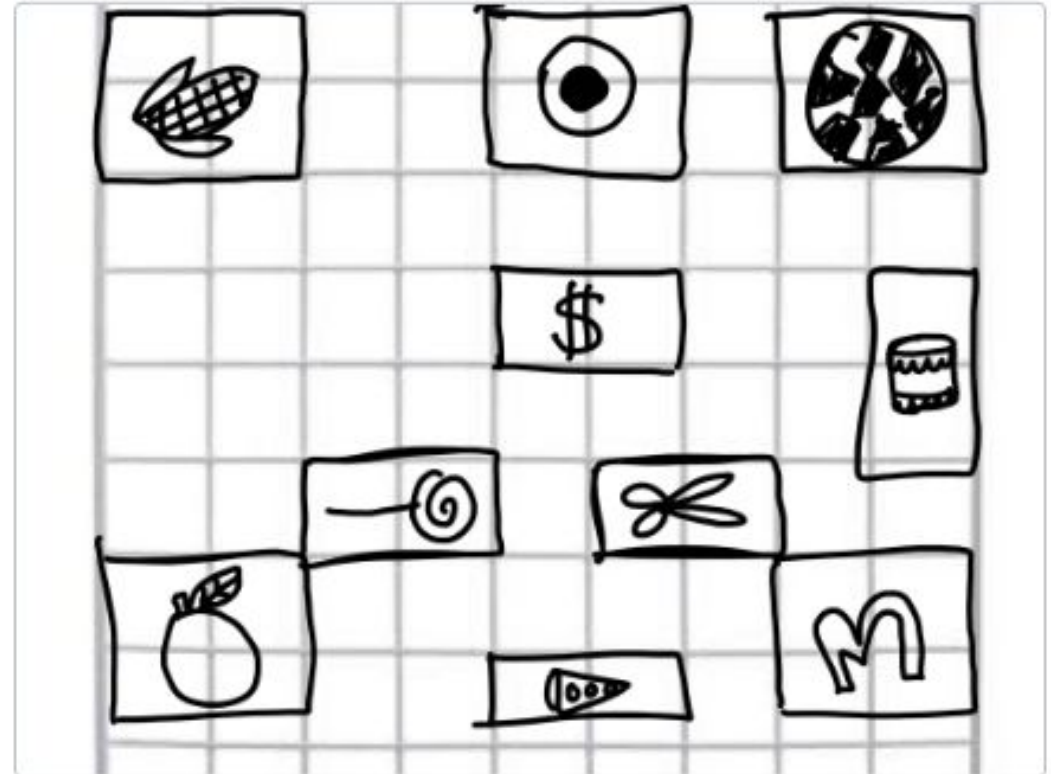
Create a community using these places.

We used some [kits from Amazon.](#)

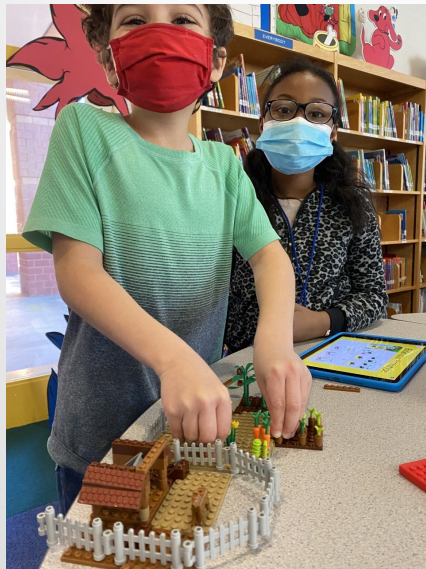
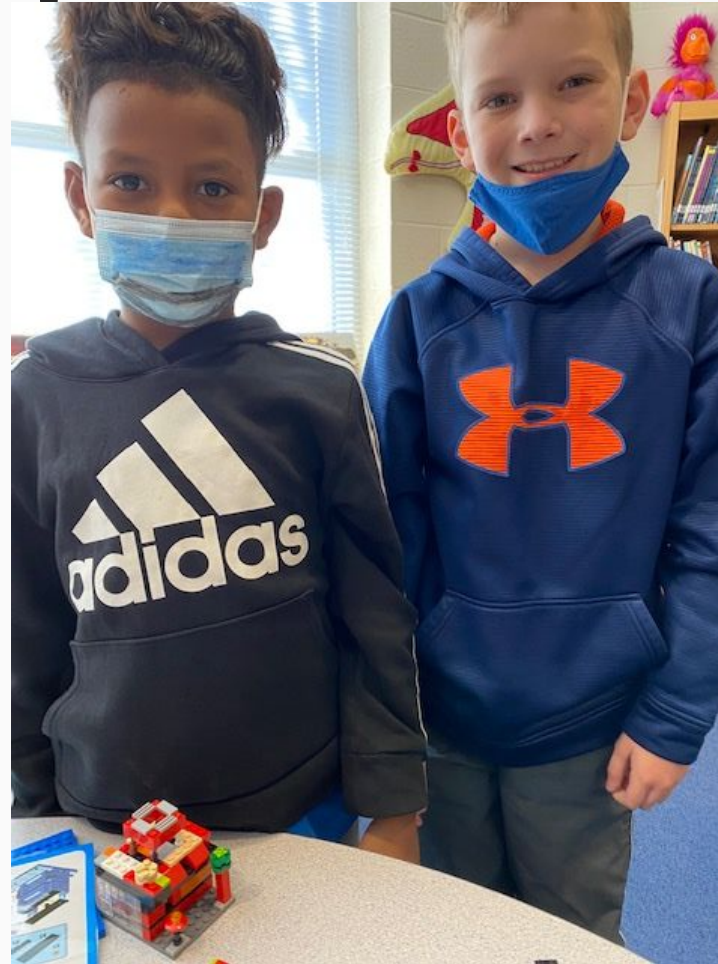
Content Connections- communities, mapping, goods/ & services



From inquiry to model to mapping...



Student Examples

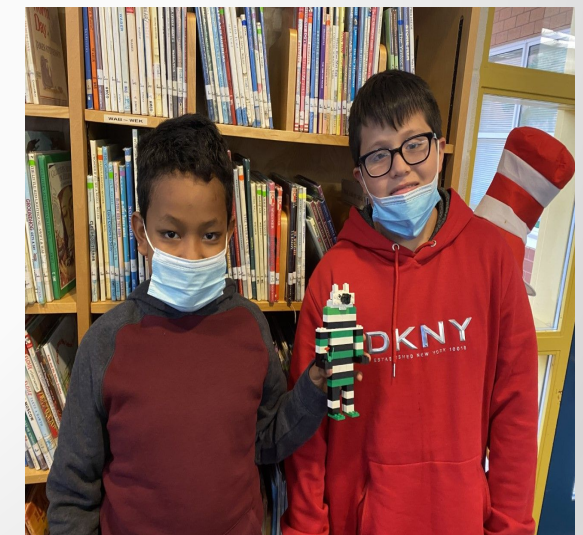


4th/5th Grade-Hybrid Animals

What kinds of adaptations help animals survive in different ecosystems?

Create a hybrid animal using at least 2 different plant or animal features.

Student Examples



Previous Years (Iggy Peck, Architect and T'was the Night Before Thanksgiving)



The Lego Story



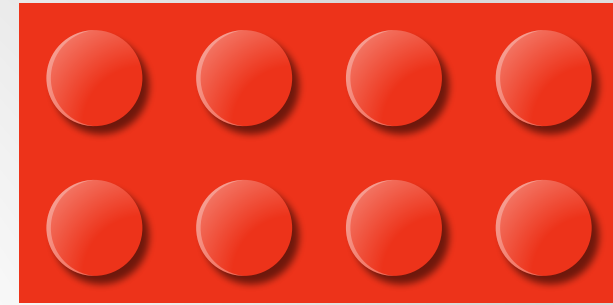
Your Date Here

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Works Cited:



Lego theme for presentation from showeet.com

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