Boyles Science Packet 17-21

“Summer STEM Box Challenges”

Day 17: Read **Engineering Process Page** and put together a "**Summer STEM Box.**"
Complete **“Planning sheet.”** Take pictures of the **Summer STEM Box** and **Planning Sheet** and send attachments on Livegrades message.

Day 18: Complete a **“STEM Challenge Card”** and take pictures of your challenge and send attachment on Livegrades message.

Day 19: Complete a **“STEM Challenge Card”** and take pictures of your challenge and send attachment on Livegrades message.

Day 20: Complete a **“STEM Challenge Card”** and take pictures of your challenge and send attachment on Livegrades message.

Day 21: Complete a **“STEM Challenge Card”** and pick one of your challenges to complete the **“Reflection Sheet.”** Take pictures of your challenge and Reflection Sheet and send attachment on Livegrades message.

Thank you!
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1. Ask
   What is the problem I need to solve?
   My friends and I need to design a fast bike to ride to school!

2. Imagine
   What are some ways to solve this problem?

3. Plan
   What are we going to do to solve the problem?

4. Create
   Let's build it!!!

5. Test
   How well does it work?

6. Improve
   What can we do to make it better?
PUT TOGETHER A "SUMMER STEM BOX"

STEM Projects are a fun way to add a bit of education into your summer schedule...and a whole lot of fun! :-)  

To create a Summer STEM Box:

1. Compile all or some of the materials listed and any others you'd like to add. Most are things you already have or can get at the dollar store!

2. Find a box, bin or basket to put them in.

3. Cut out the "challenge cards", fold them in half and place them in a jar. Kids can pull out a (random) card to get the challenge for the day!

These challenges are open-ended—the sky is the limit for creativity! They are great for individual or group work, maybe even a family competition!!
Suggested Materials for your Summer STEM Box:

- Straws
- Pipe Cleaners
- Play Dough
- Ping Pong Balls (Table Tennis Balls)
- Marbles
- Army Guys
- Paper Cups (Dixie Size)
- Kitchen Sponges
- Tape (Masking, Duct, Scotch Tape)
- Craft Sticks (Popsicle Sticks)
- Plastic spoons
- Rubber Bands
- Milk Jug Lids
- Paper Clips
- Foil
- Paper (Construction, Card Stock, Printer Paper)
- Card Board (could be cereal or other packaging boxes)
- 50-ish Pennies (for testing)
- Paper Towel Rolls and Toilet Paper Rolls
- Bubble Wrap (?)
Design & create a really fun roller coaster for a ping-pong (table tennis) ball.

Create something that will keep an egg from breaking when dropped from 4 ft. ...or even higher!!

Build a catapult that will launch a marshmallow. How far can you get it to go?

Design & create a really fun slide for a marble.

Make a paper airplane that can carry pennies. See how far you can make it fly and how many pennies it can carry!

Create a floating raft for "army guys" (or other small toys). Experiment with different materials & designs. See how much cargo (pennies) your raft can hold until it sinks. Can you create a way for the raft to move on its own?

Design & build a play-ground for marbles... include all of your favorite playground equipment!

Make a ramp with 2 jumps for Hotwheels cars. Build one jump for your car to go far and the other to go high!

Build a bridge that can go between two chairs over the span of a foot. See how many small books it can hold!!

Build a tower out of just paper that can support a book. How many books can it hold? Try different shapes and sizes!
LIST OR SKETCH SOME IDEAS:

CREATE A DRAWING TO PLAN OUT YOUR DESIGN:
REFLECTION SHEET

WHAT WAS THE PROBLEM TO SOLVE?

HOW DID YOU SOLVE THE PROBLEM?

HOW COULD YOU IMPROVE YOUR SOLUTION?