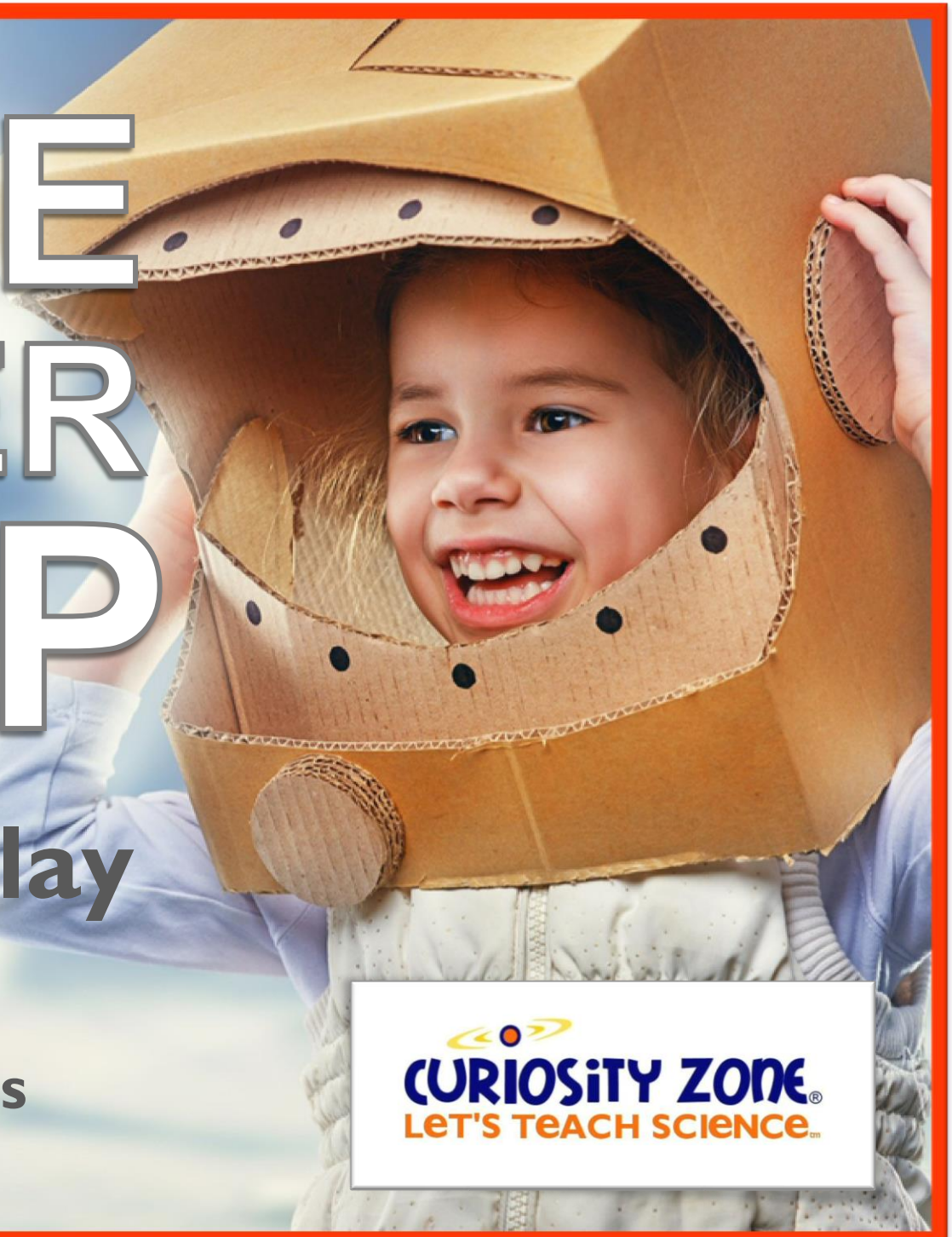
SPACE SUMMER CAMP

with Lego® Play



Unit 1: Rockets

CURIOSITY ZONE®
LET'S TEACH SCIENCE™

Space Summer Camp
Unit 1: Rockets

Time: 3 hours

Ages: 4-10

Learning Objectives:

- What is a rocket?
- What are the parts of a rocket?
- How do rockets blast off?

Word of the Day: THRUST

Activity Overview

Introduction to Camp (10-15 mins) 3

Calisthenics (5 mins) 3

Introduction to the Day's Subject, Word & Videos (10-15 mins) 4

[redacted]

Make a Straw Rocket (see attached) (20 mins) 5

Build Rockets out of Legos® (30+ mins) 5

Camp Game: Bean Bag Rockets (20+ mins) 6

Closing Circle (10 mins) 6

Extra Activities 6

page(s) redacted

Introduction to Camp (10-15 mins)

<Skip this if you have done it on a previous day with the same group of kids.>

Introductions are usually done with students sitting together on a carpet or similar.

Welcome to Astronaut Training Camp! This week we will prepare for a mission to Mars. We will go through astronaut basic training, starting each day with some warm-up exercises to get you in shape for the long mission. Each day we will learn more about space to prepare you for the mission and also build models of the things you will need using Legos®.

<OPTIONAL: At the end of the week, you can invite your grownups to our graduation and show them all that we have learned and built!>

Each day we will have a theme and a "Word of the Day."

Invite the students to say their name and something they would like to share about themselves. This can be anything from what grade they are going into, what their hobbies are, what their favorite planet is, etc. Make sure that all of the kids know each other and are familiar with the teacher and TA.

During camp there are some important camp rules that we must follow:

1. Listen when the teacher is talking so that no one misses any important instructions.
2. Raise your hand and wait for the teacher to call on you before speaking.
3. NEVER put anything in your mouth unless the teacher says it is ok.
4. NEVER leave the lab at the end of camp unless there is a parent present to pick you up.

Calisthenics (5 mins)

Start with calisthenics to get the astronaut trainees warmed up! Have the kids do a call and response while they are doing their exercises. Today's call and response will be "We love rockets, yes we do, we love rockets how 'bout you?" Do a few seconds each of the following exercises:

- Jumping jacks – have the kids do 10 jumping jacks
- Running in place – have the kids run in place as fast as they can for 20 seconds. You can do a count-down.
- Stretches- have them touch their toes and stretch from side to side.

Feel free to add in some exercises, but it is important that no child feel that they are not athletic enough to do any of these activities, so NO PUSH UPS!

page(s) redacted

Straw Rockets

Time: 20 minutes

In this activity, students use air to create thrust

Rockets require thrust to push off and move. Thrust demonstrates Newton's Third Law of Motion: For every action there is an equal and opposite re-action.

Materials

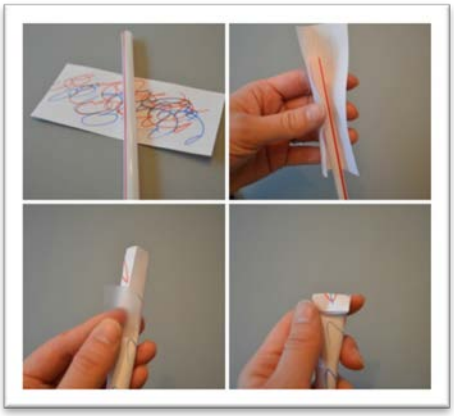
- ☐ Rocket printable – 1 rocket per student
- ☐ Printer paper – approx.. 2” x 4” square per student
- ☐ Straw – 1 per student
- ☐ class set markers
- ☐ class set scissors
- ☐ class set tape

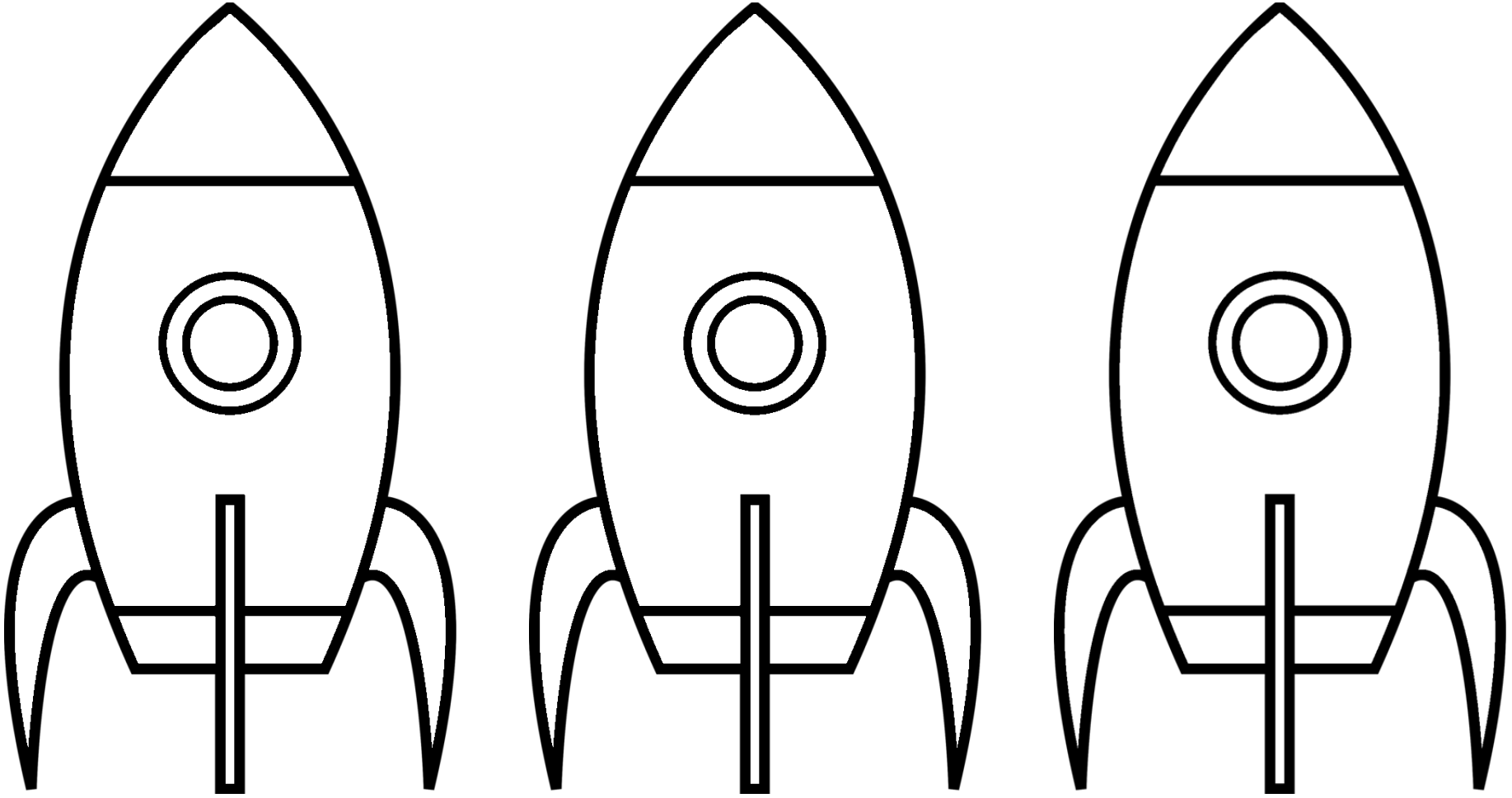
Prep

- ☐ For younger students, prep by pre-cutting the rockets and the paper “cap” (see procedure).

Procedure

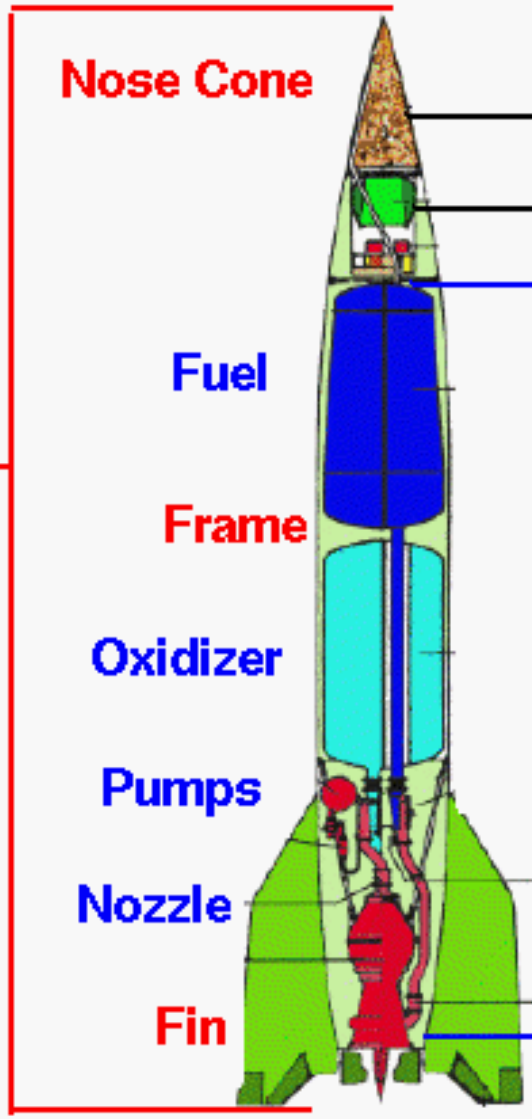
- Pass out the rocket printable. Have students color in and cut out their rocket.
- Pass out the straws and small squares of paper.
- Roll the paper strip loosely around the straw and tape along the edge to keep it rolled into a tube (but don’t tape it to the straw).
- Fold the top of the paper tube down and tape.
- Tape the tube to the back of the rocket cutout, with the open end of the tube facing down.
- Insert the straw into the tube and blow. The rocket should go flying!





page(s) redacted

Rocket Parts



Nose Cone

Payload System

Guidance System

Fuel

Structure System

Frame

Propulsion System

Oxidizer

Pumps

Nozzle

Fin