

# MAKE A PARACHUTE

3rd-4th Grade: Plan 5

## MAKE A PARACHUTE AND EXPERIMENT

### WELCOME

(5 min)

### STORY TIME

(30 min)

- Printed story:  
Leonardo's  
Dream

### SPORTS / GAMES

(30 min)

#### Materials:

- Ball (Any type  
of ball will work)



### GAME TIME

(15 min)



Welcome your students to camp!

#### Read and discuss:

Read Plan1 of Leonardo Da Vinci's Fantastic Flying Inventions with your students. You can print out one copy and gather students to listen to you read. Talk about the text and use the question prompts in the text to lead a class discussion.



#### Play "Sky Ball"

**Objective:** Pass the ball strategically while dodging defenders, mimicking the precision and teamwork needed in flight.

1. Divide players into two teams. Spread out in a large open area.
2. One team starts with the ball (the "Sky Ball") and tries to make five successful passes among their teammates without the other team intercepting the ball.
3. The defending team tries to intercept or knock down the ball to gain possession.
4. If the ball is intercepted or dropped, possession switches to the other team. The first team to successfully complete five consecutive passes wins the round.

#### PLAY A "WOULD YOU RATHER?" RUNNING GAME

Play "Would You Rather", a fun get-to-know-you game. You can play in the outdoors or an open area in the room. Number the students 'one', 'two', 'one', 'two' and direct all the ones to one side and all the twos to the other side. Read out the question. Point to either side of the room for each option. Students run to the other side of the room for the option they choose.

**(CONTINUE READING NEXT PAGE)**



## GAME TIME

(Continued)

## PLAY “WOULD YOU RATHER?” (CONTINUED)

**Questions: Would you rather ...**

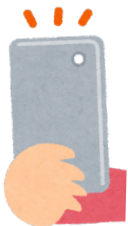
- 1....float down with a parachute or fly in a hot air balloon?
- 2....spend your Plan jumping out of a plane using a parachute or spend time making parachutes?
- 3....live on an aircraft or a submarine?
- 4....never have to sleep or never have to eat?
- 5... give up ice cream forever or pizza forever?
- 6...be able to see through walls or fly?
- 7...have scales or feathers?
- 8...live where it never snows or where it snows every day?
- 9...be a kid forever or become and adult?
- 10...spend your life in the same town or move every year?
- 11...build a treehouse or an igloo?
- 12...eat a raw onion or a lemon?
- 13...live in a world without music or live in a world without movies?
- 14...have a pet hamster or a pet parrot?
- 15...fly with pilots in early airplanes or weed the garden?
- 16....swim to school or dangle from a helicopter?
- 17....have a birthPlan without cake or balloons?
- 18....explore outer space or the depths of the ocean?
- 19....be invisible or be able to fly?
- 20....be a chicken or a cow for a day?

## PARACHUTE PIC

(20 min)

**Materials:**

- Chalk or dry erase markers



## CREATE A FUN BACKDROP AS A CLASS

Say: **“Let’s draw a giant parachute on the board and take your picture attached to the strings. Feel free to pose any way you like. Grab some chalk or a dry erase marker and help create our backdrop!”**



## STEM TIME

(60 - 90 min)

### Materials:

- 1 Plastic tarp
- String (4 per student/12 inches each)
- Tape
- Buttons or small toy (weight)
- Scissors



## STEM CRAFT

(30 - 60 min)

### Materials:

- Yarn
- Paper plates



## MAKE A PARACHUTE

**Prepare beforehand:** Cut yarn to roughly 12 inch pieces (4 per student). Gather plastic tarp and tape.

### What you'll do:

1. Each student cuts a piece out of the plastic tarp. It could be a square, a circle, or another shape that they want to try.
2. Students poke holes in their parachute with a pencil and tie a piece of string to each corner.
3. After tying a piece of yarn to each corner, students tie the other ends of the yarn around the button or toy.
4. Take students outside, for example, to the playground structure. Students drop the parachute from a height and watch it float down. Encourage students to notice how the parachute slows the fall by catching air. Try different weights or napkin sizes to see how it affects the fall, and have students experiment with the same item without the parachute. Have fun experimenting!
5. Call on students to share their findings about their parachutes.

## WEAVE A PARACHUTE IN THE SKY

### Prepare beforehand:

Cut paper plates in half and make cuts for the stencil (one line halfway down the flat end of the cut plate and six small cuts around the rounded edge).



**Watch this video:** <https://www.youtube.com/watch?v=5Qna086KFIM>

### What you'll do:

1. Each student gets a half paper plate.
2. Students use the stencil to mark their plate and make cuts.
3. Each student gets a white piece of yarn (about an arm's length) to make the base of the loom.
4. Students use their arm to measure and cut different colors of yarn and weave in and out until their rainbow is complete.
5. Students decorate their paper plate and use the yarn colors in any order they like. *If they don't finish, work on it the next day as well.*



## STEM CRAFT

(Continued)

## STEM CRAFT

60 min)



### Materials:

- Glider template
- Scissors
- Tape

## MINI-FLYER PLAY!

(30 - 40 min)

- Mini-Flyer



## WEAVE A PARACHUTE IN THE SKY (CONTINUED)

6. At the end, it may look something like this. Say: **Parachutes are made from very fine fibers woven together similar to what you did here!**



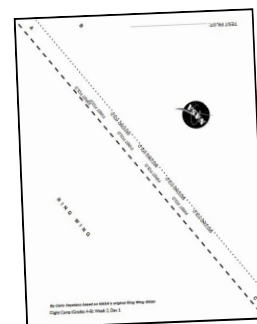
## EXPERIMENT WITH A RING WING GLIDER

Say: **Now we get to make an interesting ring flier. This glider is easy to make and can glide using a round wing.**

Watch this NASA video tutorial with your students:

### Build a Ring Wing Glider With NASA!

<https://www.youtube.com/watch?v=aQ8F5F3yGGc>



1. Students use the ring wing printout as they follow along with the video tutorial to create their own ring wing glider.
2. Students go outside to test out their glider. Allow students to try throwing it many times. It takes a little while to get the hang of it.

Extension: Encourage your students to improve the ring flier. What happens when you add a tail? Can you hook together two ring fliers with a straw or small rolled paper tube?

## PLAY “MINI-FLIER VOLLEYBALL”

### How to play:

Play a game similar to volleyball. Pass the mini-flier to the other team for them to catch and then pass back. Don't hit or bump the mini-flier, just pass it and catch it. A point is scored when the mini-flier touches the ground in the opposing team's court.

### What you'll do:

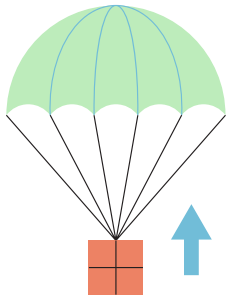
1. Split up your class into two teams. Have the students create a court to play on. Create a feature to use as a volleyball net such as a basketball court line, a line of desks, or a line of backpacks.
2. Mark the corners of the court for out-of-bounds.
3. Players pass the mini-flier from one side to the other. If the mini-flier touches the ground, either a point is scored or the serving team is switched.



## STEM STORY (LEONARDO'S DREAM)

### SKY BALL

### MAKE A PARACHUTE



### RING WING GLIDER

### MINI-FLYER PLAY



## METRIC

### 4-PS3-1.

Use evidence to construct an explanation relating the speed of an object to the energy of that object.

### 3-PS2-2.

Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. *(While playing, students notice and observe how speed, direction, and force affect passes and interceptions.)*

### 3-PS2-4 Motion and Stability: Forces and Interactions

Define a simple problem that can be solved through the development of a new or improved object or tool. *(Students make and test their own parachutes to solve the problem of slowing a falling object, observing how air resistance and forces affect motion.)*

### ETS1.B: Developing Possible Solutions

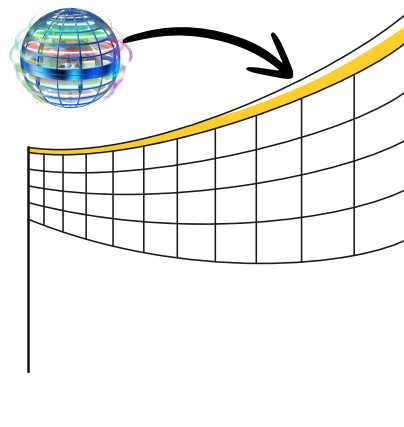
Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

### ETS1.B: Developing Possible Solutions

At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. *(The encouragement to improve and modify their ring wing glider allows students to apply the engineering design process by testing, observing, and refining their designs.)*

### 3-PS2-2.

Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. *(Students understand how to stay within the defined court boundaries and pass the flyer back and forth.)*





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FIRST FOLD

SECOND FOLD  
FIRST FOLD

SECOND FOLD  
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SECOND FOLD  
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