



**education**<sup>™</sup>

## Middle School Activity Starters

### Science Activities

#### Treehouse Trouble

Jack, Jill, and Zog have a wonderful treehouse, but it is hard work climbing up and down. It is even more difficult to bring supplies up to the treehouse. Can you design and build a solution to help Jack and Jill bring the supplies up safely? Use bricks and other materials to create a container for the supplies and way to bring them up to the treehouse. Think about simple machines and how they might help make this job easier.

For inspiration, see The Lifter lesson available at:

<https://education.lego.com/en-us/lessons/spm/the-lifter>

#### Wind-Powered Cart

It is a windy weekend at the beach and Jack and Jill are out to have a bit of fun. They have this old cart they can use, but it is hard to push. They wonder if they could use a blanket to create a sail on the cart in order to let the wind push them. Can you design and build a cart that is wind powered using a sail? Create your cart using bricks and other materials. Think about what could make a great sail and how you would want to design the sail to help push the cart.

For inspiration, see the Land Yacht lesson available at:

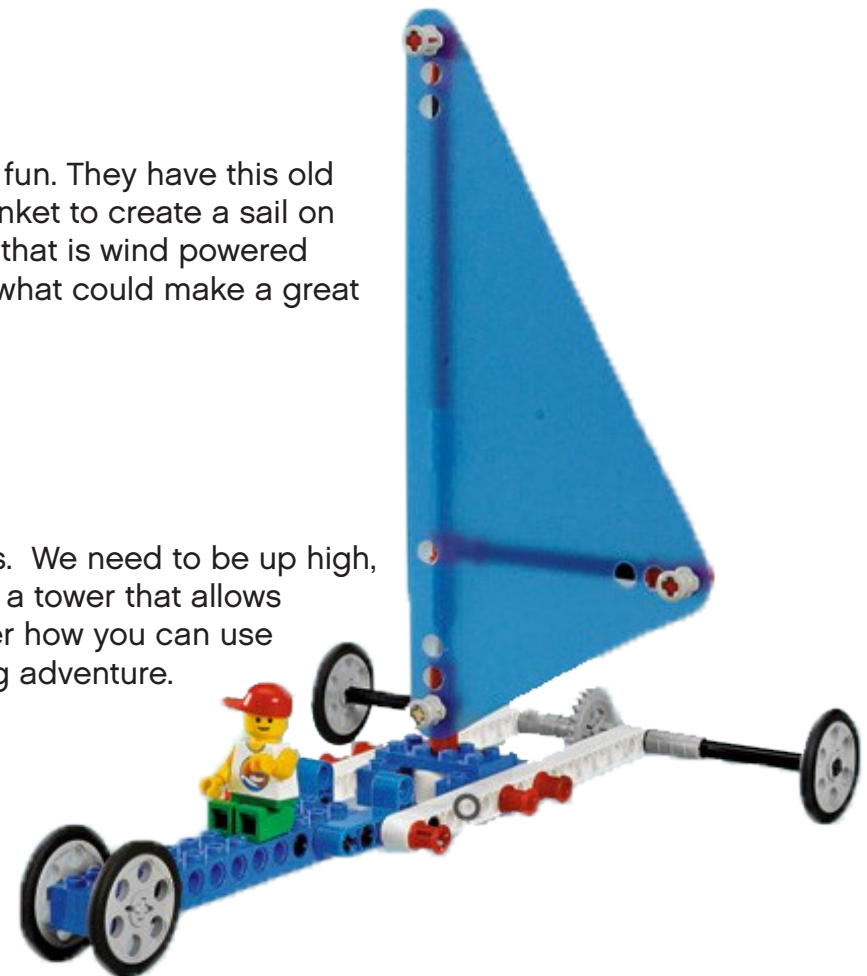
<https://education.lego.com/en-us/lessons/spm/land-yacht#Planitem0>

#### Watch Tower

It is fun to go bird watching, but we need a safe place to easily see the birds. We need to be up high, but also hidden so we don't scare away the birds. Can you design and build a tower that allows for us to be hidden from the birds, but still able to see them flying? Consider how you can use bricks and other materials to create a tower that is safe for our bird watching adventure.

For inspiration, see the Watch Tower lesson available at:

<https://education.lego.com/en-us/lessons/advancing-with-spm/watch-tower>



## School Play

It is time for the school play, but we don't have enough people for all the characters. We need someone to play the bat and the ghost. What will we do? Rather than finding another person, try to build a mechanical bat and ghost to include in the play. Using bricks and other materials see if you can design and build mechanical characters to fill these spots in the play. Think about how your characters will move and act out their parts in the play.

For inspiration, see The Bat lesson available at:

<https://education.lego.com/en-us/lessons/spm/the-bat>

## Racer

Jack and Jill are trying to create the fastest cart to play with in the park. They are trying to figure out the best design, including if it is better to have more weight or not and if the size of the wheels matter. Using bricks and other materials, design and build a cart that you can test rolling down a ramp or inclined plane. Try several different variations of your cart design to see which design is the best and makes the cart roll the furthest. Be sure to write down notes about each cart design and how it performs to determine which is the best.

For inspiration, see the Freewheeler lesson available at:

<https://education.lego.com/en-us/lessons/spm/freewheeling#Planitem0>

## Make a Security Gadget

How are you going to protect your valuables? Think about what you would want to protect and the best ways to protect those items. How can you protect your items? Will there be an alarm or flashing lights? Think about ways to create a lockbox that doesn't need a key. Design and create a gadget that will help you protect your valuable items!

For inspiration see:

<https://education.lego.com/en-us/lessons/maker-middleschool/make-a-security-gadget>

