

BACK TO THE MOON

★ **Grade Level: K-12**

★ **Focus Area: Physical Fitness, Health, Teamwork**

★ **Time: 45-60 Minutes**

BACKGROUND INFORMATION

As our next generation of lunar astronauts train for Artemis II and beyond, they need to build a number of skills, including physical fitness, memory, and dexterity, along with technical knowledge relating to the mechanics of their spacecraft and equipment.

Artemis II is planned to launch in 2024 and will bring the first humans to orbit around the Moon since 1972. Artemis III will follow by bringing the first person of color and first woman to walk on the Moon, sometime in 2025 or 2026. These astronauts will need both physical and technical ability to perform their duties while in their spacecraft and while on the surface of the Moon.

ACTIVITY OBJECTIVES

- ✦ Practice physical stamina, memorization skills, and dexterity to train like astronauts preparing for the Artemis missions to the Moon.
- ✦ Learn how to improve abilities by practicing over multiple days.

MATERIALS

- ✦ Traffic cones, pool noodles, or something else to mark start and stop lines.
- ✦ Legos, or other building toys that can be assembled and disassembled quickly. (Enough for each participant to build small structures around 5" x 5")
- ✦ Sports drinks and a shaded area for recovery after physical activity.
- ✦ Enough outdoor space to run. At least 6 feet by 20 feet per participant.
- ✦ First aid kit (1)
- ✦ Laptop, tablet, or other device with internet access. (One per participant)
- ✦ [Simon Says Game Website](#)
- ✦ (Optional) Stopwatch for timing the laps and Lego building challenges. (4)

ACTIVITY DIRECTIONS

1. Find an open area with enough space to run short laps. Make sure that there is a shaded spot nearby for rest and recovery afterwards.
2. Make sure the participants are wearing appropriate attire for physical activity.
3. Mark the start and stop lines with the cones or pool noodles for back-and-forth laps to be run, around 15 to 20 feet in length depending on the age of participants.
4. Set up your laptop or tablet and navigate to [the Simon Says online game web page](#).

- a. Feel free to substitute with other online or physical games which test your memory in a short timespan (e.g., 30 to 60 seconds). Example materials for discussion:
5. Set up tables that will serve as a 'building station' for the Legos or other building toys.
6. Inform the students that they will be training three different skills at the same time, just like how an astronaut will need to be capable of doing challenging mental tasks while performing stressful physical activity.
 - a. Start by presenting each student with a practice round of the 'Simon Says' game and building with the Legos.
 - b. Inform them they will be switching between 'Simon Says' and a building challenge, after running a few laps on the track.
 - c. The goal is to improve both physical stamina (running for longer times), your dexterity (building with Legos), and your memory (Simon Says).
 - d. Encourage the students to compare their previous performance to their current one, rather than comparing to other students. Each person has their own set of abilities, and the key to improving performance is to focus on one's own development.
7. Each student will start on the start line of the track. Tell them this time they will be doing 1 'there-and-back' lap and then immediately trying the 'Simon Says' challenge, seeing how far they can get without mistakes.
 - a. Once they are finished, tell them to return to the start line for 2 'there-and-back' laps. Afterwards, they will be moving to the building station to build an open box about 5" x 5" out of Lego (or other building toy). The goal is speed rather than detailed building. For young students, draw a template for the size on a piece of paper.
 - b. Next, they will return to the start line for 3 laps, and then return to the 'Simon Says' memory game, to see if their memorization skills have improved since the last attempt.
8. Repeat the previous pattern, with 5-minute breaks where needed, so that the participants do not get overly exhausted.
 - a. Each time they return to the building area, give the students a more complex building challenge, such as a tall tower, a spacecraft, or a Lunar base.

EXTENSIONS

- ✦ To see how the students improve over time, return to this activity over multiple days, to see if they can improve their abilities.
- ✦ For an added challenge to the building, include pre-built designs that they must follow exactly.
- ✦ Include students to act as timers with stopwatches while they rest so that they can help record their peers' improvements.
- ✦ Watch NASA's video series titled: ["Want to Be an Astronaut? You'll Need These 4 Skills."](https://www.youtube.com/watch?v=PLTUZypZ67cdtrZ3i_6N8ckywyhz6CEVQO) to continue the discussion of skills needed to be an Astronaut.

RESOURCES



NASA Johnson. (2016, December 12). *Want to Be an Astronaut? You'll Need These 4 Skills*. - YouTube. [www.youtube.com.
https://www.youtube.com/playlist?list=PLTUZypZ67cdtrZ3i_6N8ckywyhz6CEVQO](https://www.youtube.com/playlist?list=PLTUZypZ67cdtrZ3i_6N8ckywyhz6CEVQO)



Pierce, R. (2019). *Play Simon Says Game*. [www.mathsisfun.com.
https://www.mathsisfun.com/games/simon-says.html](https://www.mathsisfun.com/games/simon-says.html)

BACK TO THE MOON: TIME TRACKING SHEET

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