

Teacher Notebook

NASA Design Squad Challenge

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Ask - ID / Define the problem:

Going to the moon? You'll need a rocket. The rockets NASA sends to the moon go up to 18,000 (18,000 km) per hour. Will it take about three days to get there. Sometimes they carry equipment, but they can also carry astronauts!

Rockets use fire to push into the air. The force causes an opposite motion of the direction of the fire coming out.

In the space provided, describe how you think a rocket works. What do you understand about force and motion that could relate to how a rocket works?

You can include pictures and labels!

Assigned to Sydney

Tori Schneider
2:44 PM Today
[@sydwyd3@gmail.com](mailto:sydwyd3@gmail.com)

What is the name of the opposite force? Consider what you know about Newton's laws.

Assigned to Sydney

Student Notebook

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Completed Notebook

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Ask - ID / Define the problem:

Going to the moon? You'll need a rocket. The rockets NASA sends to the moon go up to 18,000 (18,000 km) per hour. Will it take about three days to get there. Sometimes they carry equipment, but they can also carry astronauts!

Rockets use fire to force into the air. The heat and the force causes an opposite motion of the direction of the fire coming out.

In the space provided, describe how you think a rocket works. What do you remember about force and motion that would relate to how a rocket works?

You can include pictures and labels!

Assigned to [Redacted]

Tori Schneider
2:44 PM Today
[@sydwyd3@gmail.com](mailto:sydwyd3@gmail.com)

What is the name of the opposite force? Consider what you know about Newton's laws.

Assigned to Sydney [Redacted]

Phase 2 - Reflections - On the Moon: Launch It!

1. The majority of the project went very smoothly; materials were on hand and easily accessible and dropped off for student to perform. The outline for the notebook was easy to follow and the way the student notebook was linked allowed me to log in and see student progress or answer any questions posed.
2. Issues that arose included the blended type instruction taking place due to school not being in session. Obviously it would have been much easier to do in-person instruction and have face-time with students. I think my student would have been more invested in deeper thought if in person or if there were more investment in it, such as a grade. After viewing other notebooks along this topic - I think mine was too "busy" and may need some refining. In order to differentiate - I would like to cut some of my pages down.
3. Concepts covered Newton's Laws, scientific inquiry, measurement, energy, moving objects,
4. The EDP is extremely helpful in teaching science concepts, particularly with the redesign aspect of design or test, analyze and redesign based on what worked or what didn't work; also for teaching math habits such as making sense of problems, constructing arguments, using appropriate tools, and precision.
5. I like the EDP chosen - it explains each process very well; using one that separates certain steps (background research from brainstorming) would be helpful for younger students.
6. I could make the challenge more complex by asking about independent or dependent variables and by asking students to define terms or generalizations used into scientific terms; setting a "cargo" onto the rocket (i.e. astronauts or supplies, etc); also - setting the best launch angle to hit differing flight lengths.