

GROOVE Lesson Plan

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Content Focus—What will students learn?

Technical	Academic	21 st Century Skills
ISTE: 3.d – Process data & report results ISTE :1.c – Use models & simulations	NGSS: MS-ETS1-4 - Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	Critical Thinking & Problem Solving Productivity & Accountability

Lesson Outline—What learning activities will students do?

Time	Sequence	Description of Learning Activity
5-10m	Get Started/Engage	(Hold up a simple paper airplane design) Who has made a paper airplane? How many kinds have you made? How were they different?
8-10m	Discover/Explain: Provide new information or demonstrate a skill	Explain some Guinness Book records for paper airplanes and explain how they (Gliders) work. Introduce new vocabulary. Demonstrate how to fold a basic “Dart” while students follow along. Explain how engineers use models to evaluate, test, and modify.
15m	Practice: Provide opportunities to practice independently or in groups	Students will create a “Stable” using directions provided on Google Classroom. Teacher will provide assistance where needed. Students will log and compare flight characteristics of both planes. (Distance, stability, time aloft)
10m	Check for Understanding: Monitor what is being learned	How did the planes compare in the 3 area? What might have created the differences?
5m	Close: Summarize, check, and answer questions	What changes might you make to improve the flight characteristics of either plane? (Submit answers in Google Classroom)
	Support, Modifications, and Extensions	Students without adequate WIFI can receive all information in packet form. Teacher can be reached and answer questions through the Remind app. Students without adequate WIFI can receive all information in packet form. Teacher can be reached and answer questions through the Remind app. Advanced students can be challenged to create their own designs.

Materials and Resources—What do you need to assemble and prepare before the lesson?

Vocabulary and definitions uploaded to Google Classroom.
 Directions for the “Dart” & “Stable” uploaded to Google Classroom.
 Exit ticket posted on Google Classroom.
 Paper

Reflection—Did the students learn the content outlined in the lesson focus? Why or why not?

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