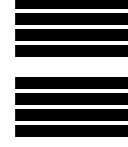


# LESSON 1.2



## BUILDING PLANKS

### LESSON CONTENT

Technical Skills	Academic Standards	21 <sup>st</sup> Century Skills (p21.org)

### MATERIALS & RESOURCES:

- 1 Plank Design Sheet
- 1 Piece Foam/Student
- 1 Playing Card/Student
- 1 Ruler/ Pair
- 1 Pair Scissors/Pair
- 1 Roll Tape/Quad

### SEQUENCE OF INSTRUCTION

Time	Section	Description of Instructional Activity
Day 1		
	<b>Prepare</b>	Setup the test area in the classroom. Ideally it should be 1 meters x 3 meters. If you can get two test areas on spread apart, that's even better.
15	<b>Engage</b>	<ul style="list-style-type: none"> <li>• Hold up a sample plank for the students to see</li> <li>• Tell them that this is the starting point</li> <li>• Go over the different parts of the design, have the students label the diagram in their workbooks.               <ul style="list-style-type: none"> <li>○ Body</li> <li>○ Elevons</li> <li>○ Vertical Stabilizer</li> <li>○ Weight</li> <li>○ Launching Hook</li> </ul> </li> <li>• Show the students the test area               <ul style="list-style-type: none"> <li>○ Tell them that only 1 student is allowed in the marked off area at a time</li> <li>○ Demonstrate the two hand testing launch                   <ul style="list-style-type: none"> <li>▪ Stand in the test area</li> <li>▪ Visually Check around you</li> <li>▪ Hold the glider with two hands over their head</li> <li>▪ Say "Clear"</li> <li>▪ Let it go without throwing it</li> <li>▪ Observe the flight</li> <li>▪ If someone enters the area before they let it go, they can't launch the plane.</li> </ul> </li> <li>○ Demonstrate the launcher launch                   <ul style="list-style-type: none"> <li>▪ "Preflight" go down the checklist with your partner when your on deck</li> </ul> </li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>▪ "Prep" hook plane on the plane on the launcher, and pull it back to the mark</li> <li>▪ "Clear" look around to make sure no one is in the way</li> <li>▪ "Launch" let go of the plane</li> <li>▪ "Enter and Recover" enter the non-movement area and pick up your plane</li> </ul> <ul style="list-style-type: none"> <li>• Be sure to tell them that they will have to be able to demonstrate this today to be able to test planes on their own. If they can show it, they will be get a signoff towards their Glider Endorsement</li> </ul>
10	<b>Discover/Explain</b>	<ul style="list-style-type: none"> <li>• Hand design sheet &amp; rulers to student s</li> <li>• &lt;procedure for practicing measuring 1:2 scale&gt;</li> <li>• &lt;workbook practice for measuring in 1:2 and 1:1 scales&gt;</li> <li>• Go over measurements of plank</li> </ul>
30	<b>Practice</b>	<ul style="list-style-type: none"> <li>• Have the students start measuring and cutting out their planks</li> <li>• While students are making their planks <ul style="list-style-type: none"> <li>○ Have each one come up and demonstrate the two hand launch on the sample plank in the test area</li> <li>○ Make sure they look before they drop</li> <li>○ Have them practice a launcher launch into a blanket</li> <li>○ Make sure they do the right thing during the right command.</li> <li>○ Any students who correctly show the launches, should be signed off in the pilot record</li> </ul> </li> <li>• Student may decorate their planes as they see fit</li> <li>• As students finish cutting out the basic shape, they should cut a slit for the playing card</li> <li>• They should also bend the elevons up</li> </ul>
10	<b>Wrap Up</b>	<ul style="list-style-type: none"> <li>• Collect the materials back from the students</li> <li>• Tell them they will be able to start testing their planes tomorrow!</li> <li>• Have the students write two things they learned and two questions they have in their workbooks.</li> </ul>
<b>Day 2</b>		
5	<b>Engage</b>	<ul style="list-style-type: none"> <li>• Show students the tail numbers</li> <li>• Tell them that only planes with tail numbers can fly on the flight line</li> <li>• Have them read the Airworthiness standards for Gliders in their handbook</li> <li>• Hand out the Airworthiness certification form</li> </ul>
40	<b>Discover/Explain/ Practice</b>	<ul style="list-style-type: none"> <li>• Have students continue working on decorating their planks</li> <li>• They should also weight them</li> <li>• Students can also begin to fill in the AW-SG</li> <li>• Call them over in groups to test their planes in the test area <ul style="list-style-type: none"> <li>○ They should add &lt;XX&gt; washers and tape them on</li> <li>○ They should also adjust the elevons until straight and level flight is achieved.</li> </ul> </li> <li>• Weigh Again</li> <li>• As students finish filling in AW-SG, and have planes already to go, they should bring them to you for certification. This is an assessment. Verify all the information.</li> <li>• Add a nose hook</li> </ul>

		<ul style="list-style-type: none"> <li>• If they have completed everything, they should be given a tail number for their plane, and checked off on the pilot record for building a plank</li> <li>• Any planes without tail numbers cannot be flown on the flight line.</li> </ul>
5	<b>Wrap Up</b>	Have the students look for similarities and differences between their plane and someone else's.
<b>Day 3</b>		
5	<b>Engage</b>	<ul style="list-style-type: none"> <li>• Have the students take their planes out, they should all have a tail number at this point.</li> </ul>
40	<b>Discover/Explain</b>	<ul style="list-style-type: none"> <li>• Safety Brief <ul style="list-style-type: none"> <li>○ Before you leave for the flight line, review the flight line procedures in the pilots handbook</li> <li>○ Review movement and non-movement areas</li> </ul> </li> <li>• Each student should launch their plane, recording the distance that it flies in their workbooks. When one person is flying their partner is writing down distances.</li> <li>• Repeat with all launcher running until everyone gets two test flights in.</li> <li>• Have materials on the line for quick repairs or adjustments</li> </ul>
5	<b>Wrap Up</b>	Students should reflect on their experiences in their workbooks

<b>ASSESSMENT:</b>	<b>ADAPTATION/DIFFERENTIATION:</b>
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