



STEM for inclusive Schools

WP2 – Activities

Worksheet – The Effect of Bridge Design on Weight Bearing Capacity

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Project Title: STEM for inclusive Schools

Acronym: STEMinsCH

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Project partners:

- P1 University Paderborn (UPB), DE
- P2 Universitatea Dunarea de Jos din Galati (UDG), RO
- P3 Scoala Gimnaziala Nr. 7 Galati, RO**
- P4 Siec Badawcza Lukasiewicz - Instytut Technologii Eksploatacji, PL
- P5 Inovatif ve Girisimci Toplum Dernegi, TR
- P6 Sucessos Criativos, Lda, PT

Worksheet for the Activity:

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The Effect of Bridge Design on Weight Bearing Capacity

Task description:

Time to finish the task: 100 minutes

Supplies:



- Popsicle sticks or balsa wood (for building the bridges)
- Glue (wood glue or hot glue)
- Weights (small weights or sandbags)
- Scale (to measure the weights)
- Ruler or measuring tape
- Notebook (for recording data)

Method:



Small group work



Instructions:

https://www.youtube.com/watch?v=s3HZievz_3Y

Use the template of the video.

Design a bridge which must be able to hold around 10 kg of weight. Structure must span a minimum of 35 cm in length.

Construct the designed bridge using popsicle sticks or balsa wood. Ensure each bridge has around 35 cm span length for a fair comparison.

Glue the pieces together and allow them to dry completely.

Your Group name:



Write the names of your group members in the box:



Set up a testing area where you can place the bridges between two supports.

Gradually add weights to the center of each bridge until it fails (collapses or breaks).

Record the maximum weight each bridge can hold before failing.

Measure and record the weight each bridge held before collapsing.



Compare the weight-bearing capacities of the different bridge designs.

Analyze the data to determine which design was the strongest and why.

- **Write down your observations.**

