




**BUILD A TOWER!**

<b>Age group</b>	Secondary School, Grades 1 – 4		
<b>Competency features</b>	Consideration and choice of suitable alternative 	Problem solving 	Evaluation of solution 
<b>Aims</b>	<ul style="list-style-type: none"> <li>▪ to tackle a construction task</li> <li>▪ to cooperate in a group and share responsibility for the result</li> <li>▪ to make efficient use of limited resources</li> <li>▪ to make use of learning (centre of mass, load bearing support structures)</li> </ul>		
<b>Timing</b>	90 minutes		
<b>Location</b>	indoors and/or outdoors		
<b>Resources &amp; materials</b>	a stone with off-centre balance as weighting each group: wooden skewers, sticky tape, string, glue, knife, scissors, paper, plastic file, plasticine		
<b>Description</b>			

- 1) Teacher will have prepared tools and materials for each group. It is suggested to provide rather less than more (e.g., 40 wooden skewers, 1 sticky tape, 2 meters of string). Teams have to plan their construction carefully, handling available resources economically. If absolutely necessary, teacher may provide more supplies.
- 2) Groups are set their task: Within, say, 90 minutes, build a tower using available resources.
  - The tower must be capable of holding atop the stone with off-centre balance.
  - First, build quality is assessed – the tower must not collapse, lean or bend under the weight.
  - Its height is a secondary criterion; should more groups succeed in the task, the tallest tower shall win.
  - During construction, builders may feel the stone for weight, but they are not allowed any trial runs with it on top of their tower. Instead, other loads may be used (mugs, other rocks, etc.).
- 3) Once the time is up, towers are load-tested. A chosen member of each group is given the stone, and places it atop the tower. He is offered enough time to achieve a stable position. As he lets go off it, no more adjustments are allowed, i.e. touching either the stone or the tower itself. Success is patently obvious, and so is failure. The winning group is awarded a prize.
- 4) Teacher may refer to textbooks, manuals and/or studies to point out different types of construction and what they are suited for.

<b>Risks and recommendations</b>	<p>It is suggested the groups are overwhelmed with tools and materials, regardless of utility. So it happens that to build the tower, only two items are essential: sticky tape and wooden skewers. The rest is more or less superfluous.</p> <p>It is advisable to observe the groups at work, and how team roles are naturally assigned or taken up. In this exercise, it is also possible to analyze role playing (quality) and cooperation between group members (team work).</p> <p>Ideally, groups should be kept apart to prevent copycatting.</p>
<b>Feedback</b>	<p><u>Questions for discussion:</u></p> <p>How did you choose what role each of you would play in the team?</p> <p>Why did you choose your particular solution?</p> <p>Did you have to make changes in your construction while already building the tower?</p> <p>Was there a major hitch?</p> <p>What conclusions could we draw from this exercise?</p>

<b>Application in classes</b>	This activity is aimed at specific technical subjects – construction and the like.
<b>Notes</b>	