

TECHNOLOGY ACTIVITY

State Expo String Rockets

NATIONAL STANDARDS

- #2 – Students will develop an understanding of the core concepts of technology
- #8 – Students will develop an understanding of the attributes of design
- #9 - Students will develop an understanding of engineering design
- #10 - Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving
- #11 - Students will develop abilities to apply the design process
- #16 - Students will develop an understanding of and be able to select and use energy & power technologies

NATIONAL BENCHMARKS	OPPORTUNITIES TO ACHIEVE
<p><u>(Grades 9-12)</u></p> <p>#2 – Y,AA,DD,EE #8 – H,I,J,K #9 – I,J,K,L #10 – J,K,L #11 – M,N,O,P,Q,R #16 – J,K,L,M,N</p> <p><u>(Grades 6-8)</u></p> <p>#2 – N,P,V #8 – E,F,G #9 – F,G,H #10 – F,G #11 – H,I,J,K,L #16 – E,F,G,H,</p>	<ul style="list-style-type: none"> ➤ Students will produce a minimum of three sketches and ideas to solve the problem ➤ Students will understand the properties of thrust, drag, gravity, mass, and lift and use them in the design process ➤ Students will develop a working rocket capable of the maximum distance by release of inflated balloon ➤ Students will follow all parameters as stated on the State Expo events sheet for Rockets ➤ Students will show improvement of distance after each successive trial and design modification ➤ Students will follow all given safety guidelines for launching and working ➤ Students will clean up work area to teacher's satisfaction ➤ Students will learn the difference between modern rocket propulsion methods and the air-powered rockets being used ➤ Students will learn about career opportunities in the field of aero-space

SHOW ME STANDARDS

Performance Standards:

- Goal #1 – 5
- Goal #2 – 2,3,
- Goal #3 – 1,2,3,4,5,6,7,8
- Goal #4 – 1,5,6,7

Knowledge Standards:

- Comm Arts – 1,3
- Math – 2
- Science – 1,2,7

ASSESSMENT

- Sketches complete and all parts labeled
- Students are able to define and explain properties related to flight and point to a model as to where they are exerted
- Students developed rockets capable of travel on the string following Expo guidelines
- Successive trials produced increasing success due to design change and collaborative thinking with partner
- Students followed all safety regulations for activity
- Students could sketch and explain to the class difference between air power and solid fuel energy
- Students produced a researched list from the internet of career opportunities in the aerospace industry and their outlook for future employment
- Students communicated effectively during work session with partner