8th Grade Technology Education

The first focus is for the 8th grade students to learn the safe use of various machines. They will be given demonstrations on the safe use, and the they will demonstrate mastery of the use through safety tests.

The second focus of the 8th grade course is design, construct and test. Students will design, produce working drawings for and build a CO2 powered dragster.

The third focus is on building the dragster with the use of the various machines.

Course Information:

Frequency & Duration: Averaging 42 minutes; 5 days per week for 7 weeks

Text: Teacher prepared materials

Content: CO2 Powered Dragster **Duration:** 7 weeks

Essential Question:	Why is safety so important in this class?
Skill:	• Students will be given a demonstration on the safe use of the Drill Press • Students will be given a demonstration on the safe use of the Band Saw • Students will be given a demonstration on the safe use of the Disc Sander • Students will be given a demonstration on the safe use of the Drum Sander
Instructional/Engagement Activities	
Assessment:	• Students will be safety tested on the safe use of the classroom machines.
Resources:	Teacher prepared and state prepared safety tests
Standards:	3.7.7 Describe the safe and appropriate use of tools, materials, machines and techniques to answer questions and solve problems.

Vocabulary:	None

Content: CO2Powered Dragster **Duration:** During the 7.5 weeks

Essential Question:	What factor will make your CO2 dragster fast? Why is it important in today's economy to have an aerodynamic car?
Skill:	• Student will design a rough draft • Students will design a Blue Print for their dragster • Students will use various machines to construct the dragster • Students will set up the dragsters wheels
Instructional/Engagement Activities	
Assessment:	Students will demonstrate their knowledge of the vocabulary and skill on the machines. Students will test their designs on a test ramp to assure their dragsters run smooth and straight
Resources:	Teacher prepared materials Video: Land Speed Records Video: Believing The Dream
Standards:	3.2.7.B Apply process knowledge to make and interpret obsevations. 3.2.7.DKnow and use the technological design process to solve problems 3.7.7.BUse appropriate instruments and apparatus to study materials.
Vocabulary:	CO2 Car Vocabulary 1. Aerodynamics The study of the motion of air on objects and the forces created.

2. Aesthetics A quality dealing with the appearance of an object.

3. Airflow The motion of air currents around an object as it moves through the air.

4. Axle A supporting shaft or member on or with which a wheel or a set of wheels revolves.

5. Bearings A device that supports, guides, and reduces the friction of motion between fixed and moving machine parts.

6. CO2 Cartridge A small, sealed, metal tube that contains compressed carbon dioxide. CO2 cartridges are used to propel racecars down the track.

7. Chassis All mechanical parts of the car attached to the structural frame.

8. Dragster A racecar that races a short distance on a straight track. Co2 cars are often referred to as dragsters.

9. Down Force Vertical force directed downward.

10. Draft The act of pulling loads, traction

11. Drag Force that resists an objects movement through air.

12. Engineering The application of scientific and mathematical principles to practical ends such as design and manufacture of a product.

13. Force Power made operative against resistance, exertion.

14. Friction Force that resists relative motion between 2 objects in contact.

15. Inertia Tendency of an object at rest to remain at rest unless acted upon by a force.

16. Lift An aerodynamic force that pushes upward on a body as it moves through an air stream.

17. Newton English mathematician and scientist who formulated the three laws of motion.

18. Prototype A preproduction version of a product used to test for design flaws so they can be fixed before mass production.

19. Rail Car A co2 racecar design in which the wheels are mounted on the outside of the car body.

20. Rough Sketches Larger than thumbnails and show more detail.

21. Set Up This is the step when we straighten the axles, grease the bearings and adjust the car so it goes straight on the test ramp.

22. Symmetry To have balance, or to have the same shape or size on opposite sides.

23. Testing The actual use of the ramp to make sure the car is moving straight.

24. Thumbnail Sketches Small quick rough sketches on paper not very detailed.

25. Thrust Force that propels an object, sets it into motion and keeps it moving.

26. Wind Tunnel A tube like structure where wind is provided usually by a large fan to flow over the test object. The object is connected to instruments that measure and record aerodynamic forces that act upon it.

Comments: