

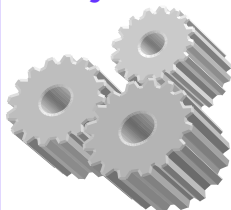


## 4-H ENGINEERING & SAFETY SCIENCE ACTIVITY PAGE

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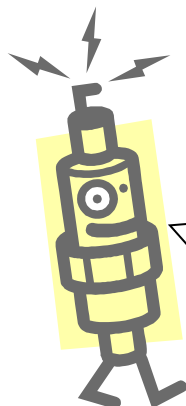
Beginning

### Your 4-H ENGINEERING & SAFETY SCIENCE Project



Knowing how to make decisions is an important skill to have in life. Every day you have to decide all sorts of things, such as what to eat for breakfast or what games to play at recess. This 4-H project can help you make good decisions so that you stay safe as you ride your bike or work with small engines. Some of the skills you can learn and activities you can do this year are listed below. Check your favorites. Then, work with your 4-H leaders and parents to make a 4-H project plan for what you want to do and learn this year.

- ☐ Learn care and maintenance of the bicycle.
- ☐ Learn bicycle safety.
- ☐ Learn the rules of the road when bicycling.
- ☐ Learn how a small engine works.
- ☐ Learn about fuels and lubricants for engines.
- ☐ Learn how to check a spark plug.
- ☐ Learn safety when using small engines.
- ☐ Learn about farm safety.
- ☐ Learn about tractor operation and maintenance.
- ☐ Complete a service project using project skills learned.
- ☐ Give a bicycle or small engine demonstration in the 4-H club meeting.
- ☐ Make an exhibit or poster about safety rules.
- ☐ Other \_\_\_\_\_



#### Check Your Spark Plug

Spark plugs should be checked every 100 hours of operation. Clean the plug with a pen knife or wire brush and solvent. Check the electrode gap with a wire gauge and set if necessary to the recommended gap—usually .025 to .030-inch for most small engines. If electrodes are burned away, or the porcelain is cracked, replace with a new plug. Spark plug gauges might be also be called “feeler gauges.”



Life Skill

Ethical  
Decision Making

#### Where Do You Find a Small Engine?

Lawn Mowers  
Boat Motors  
Weed Eaters  
Go-Karts  
Mini-Bikes  
Garden Tractors  
Garden Tillers

### Seat Belt & Helmet Secret Message

In the key below, letters above the line equal the letters below the line and vice versa. Use the key to reveal a message about using seat belts and helmets.

VS LBH UNQ NAL OENVAF,  
LBH'Q CEBGRPG GURZ.

Decryption Key

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

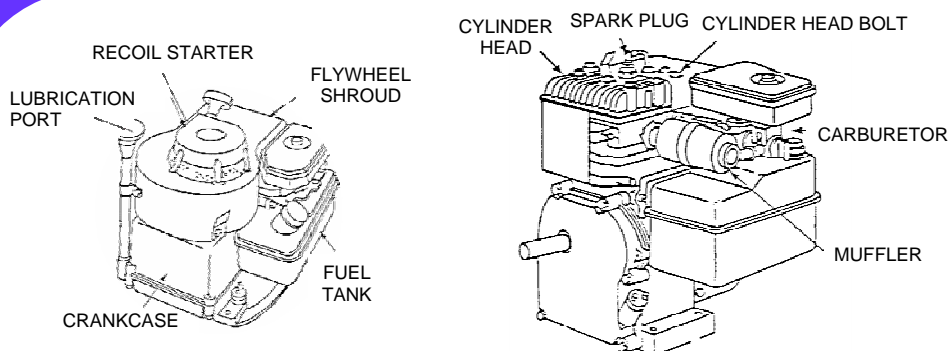
### Try This Activity—Making A Quick Stop

You will need:

- a partner to practice this skill
- a bicycle
- a helmet
- a large, safe area to practice
- a sponge

Practice riding your bike in a large area, warming up first, then applying your brakes with normal pressure. Now try heavy pressure. Start slowly, gradually increasing your speed. After a practice time, ask your helper to stand in one place. You will ride your bike in a straight line past the helper. At some point, the helper will toss the sponge in front of you. You must make a quick stop to avoid hitting the sponge. Practice until you can stop without skidding and keep your balance without putting your foot down. Hint: As you push your weight to the back, apply your front brakes more than the back brakes.

## 4-H ENGINEERING & SAFETY SCIENCE ACTIVITY PAGE



Vertical Crankshaft Engine

Horizontal Crankshaft Engine

### Try This

In your 4-H project folder, make a list of the basic engine parts shown on these drawings and write a short definition for each.

### Farm and Home Safety Checklist

How safe is your family? Here are a few safety questions. Add your own.

- ☐ Does your family have a designated meeting place in case of a fire?
- ☐ Are stairways free from tripping hazards?
- ☐ Do you have a flashlight ready in case of power outages?
- ☐ Are guns locked up?
- ☐ Do you always wear your seat belt?
- ☐ Do you stay away from farm equipment when in operation?
- ☐ Are pesticides and chemicals stored safely?
- ☐ Does your family prevent "riders" on the lawn mower or tractor?

### Career Scavenger Hunt

By asking others, researching on the Internet or reading a book or magazine—search for a job that uses engineering & safety science skills and knowledge. Here's what you are looking for.

1. Job Title \_\_\_\_\_
2. Job Description \_\_\_\_\_  
\_\_\_\_\_
3. Education Required \_\_\_\_\_  
\_\_\_\_\_

### Service Ideas

- Conduct a safety hazard hunt for in your home.
- Make Velcro® pant straps for a young bike rider.
- Make an exhibit about motor oils or spark plugs. Display in a public place.
- Make a safety flyer for your classmates.

### Additional Resources

Making good decisions is an important part of working with engineering & safety science. This activity sheet has given you the opportunity to explore things to think about as you work in this area. You've studied the parts of an engine, checked spark plugs and done other cool things. But this is just the beginning! Use the resources listed below to continue learning about engineering & safety science.

- School & public libraries
- People who know about bicycles and small engines
- Small engine or bicycle owner manual
- 4-H project groups
- The 4-H engineering & safety science Web page:

[www.utextension.utk.edu/4h/projects/engineering.htm](http://www.utextension.utk.edu/4h/projects/engineering.htm)

Don't forget to submit your project report to your 4-H leader.



For more ideas, contact your 4-H office.

Other 4-H Engineering & Safety Science Activities

4-H Demonstrations  
4-H Visual Exhibits  
Bicycle Rodeos

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