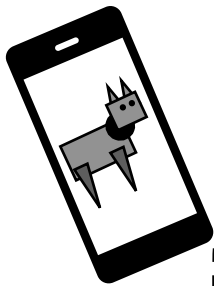
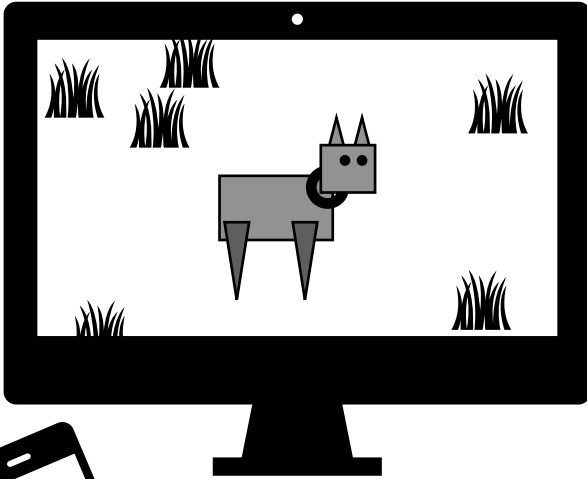




Don't Fence Me In!



EVIDENCE

Cattle, or cows, make many products. A large amount of income in many southwestern states comes from cows.

GLOSSARY

Cue - word or sound that serves as a signal, warning, or reminder

Global Positioning System - a satellite-based navigation system that determines location

Natural Resource - a living or nonliving part of nature that humans and other organisms can use (for example, air, soil, and animals)

Overgrazing - excessive grazing resulting in damage to the rangeland

Rangeland - a vast land area grazed by domestic animals and wildlife

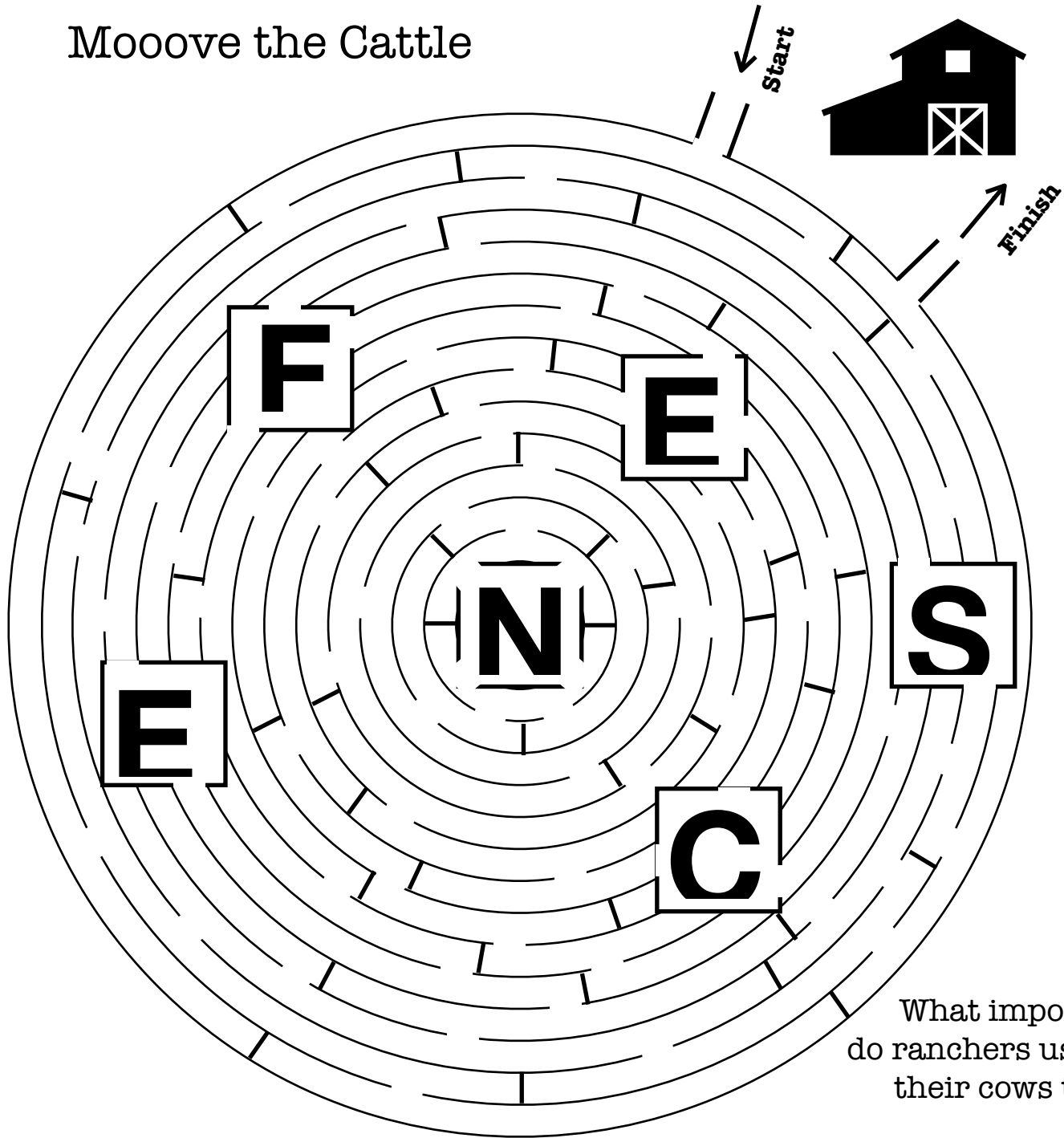
Virtual Fencing - a wireless fencing system composed of a GPS-fitted collar and sensor used to keep domestic animals in specific areas

Wind Erosion - the movement of soil by wind

Which of these items come from cows?



Mooove the Cattle



What important tool do ranchers use to keep their cows together?

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

EVIDENCE

When cattle graze in areas not intended for grazing, the plants can be damaged. The bare ground exposed by the loss of plants can lead to loss of soil by **wind erosion**. Erosion can cause soil nutrients to be carried away by the wind, affecting plant health.

EVIDENCE

Years of drought and **overgrazing** by cattle have caused a change in plant life from mostly grasses to mostly shrubs. Grass protects the soil better than shrubs, and cows prefer to eat grass over shrubs.



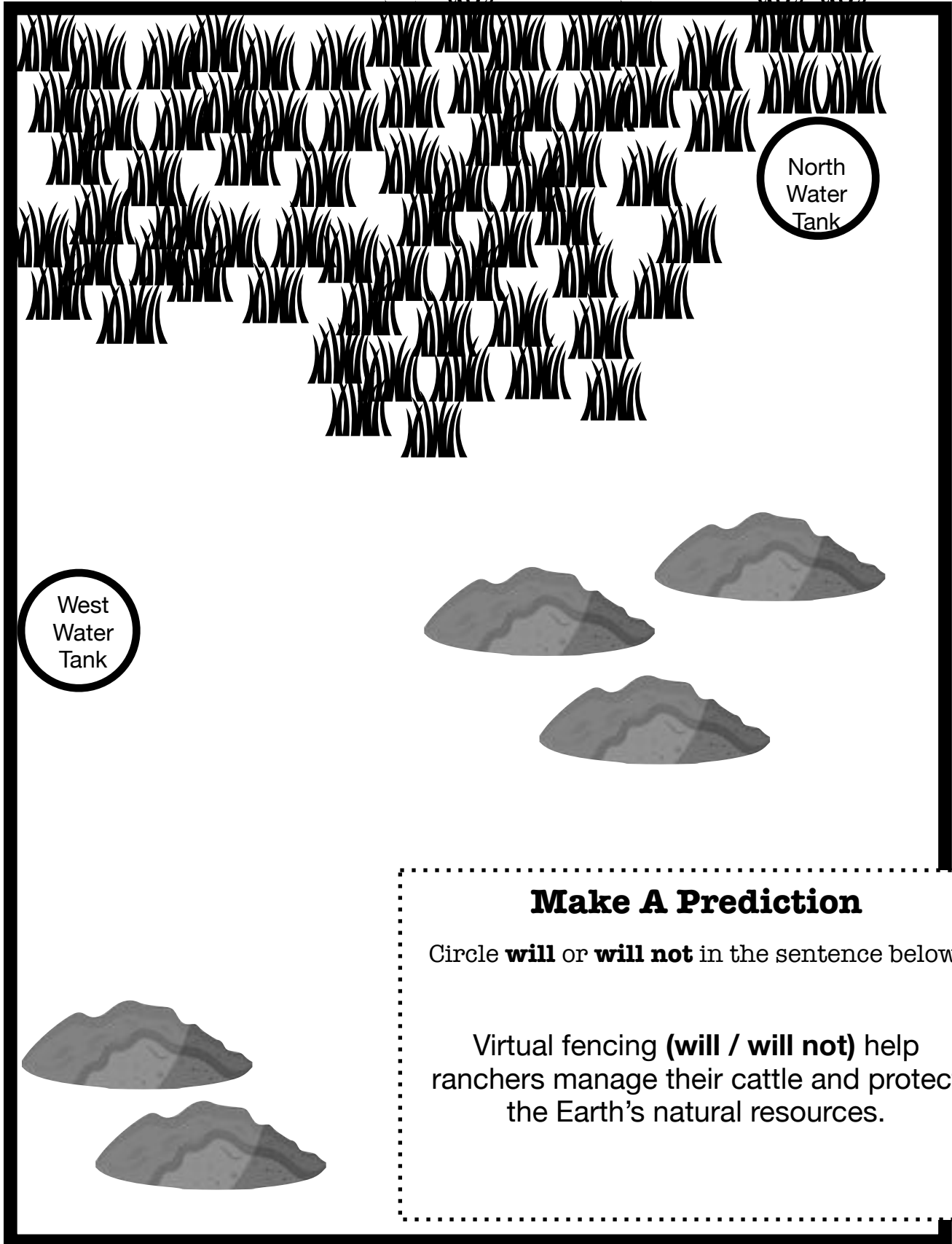
Grazing Area



Black Grama Grass - Exclusion Area



Sensitive Soil - Exclusion Area



North
Water
Tank

West
Water
Tank

Make A Prediction

Circle **will** or **will not** in the sentence below.

Virtual fencing (**will / will not**) help ranchers manage their cattle and protect the Earth's natural resources.

Trial 1

Use the popsicle stick to push the marble from the West to North Water Tank in a straight line. Record your successes and failures in avoiding the “exclusion areas” for 5 attempts.

Attempt	Success in avoiding the “Exclusion Areas”	Failure in avoiding the “Exclusion Areas”
1		
2		
3		
4		
5		

EVIDENCE

Virtual fences can help ranchers reduce overgrazing and soil erosion and protect sensitive areas by excluding cattle, thus protecting Earth’s **natural resources**.

EVIDENCE

Collars warn cattle when they are near the virtual fence by producing a sound. If the cattle ignore the **cue** and continue past the virtual fence, they receive a mild electric shock. Cattle learn to turn around to avoid the electric shock after a few days.

Trial 2

Use your yarn to create a “virtual fence.” You do not have to use all of the yarn, and you can cut the yarn. Use the popsicle stick to push the marble from the West to North Water Tank while staying in the shape. Record your successes and failures in avoiding the “exclusion areas” for 5 attempts.

Attempt	Success in avoiding the “Exclusion Areas”	Failure in avoiding the “Exclusion Areas”
1		
2		
3		
4		
5		

Create an Argument For or Against Virtual Fencing

Based on the video, your experiment, and the evidence about ranching, cattle, and fencing in your journal, create an advertisement, a radio commercial, or a brochure about virtual fences and whether or not they will help ranchers better manage their cattle and protect Earth's natural resources.

What argument will you make?

Circle **will** or **will not** in the sentence below.

Virtual fencing (**will / will not**) help ranchers manage their cattle and protect the Earth's natural resources.

Drawing Space

Use this space to draw an advertisement or brochure.

Writing Space

Use this space to write your sentences.

Write for your advertisement and come up with a cool name!

Write 3-5 sentences for a radio commercial.

Write 1-2 sentences for a brochure.

Writing space consisting of 18 horizontal lines for text entry.