

Discover How Tides are Formed!

Grade Level(s): 5 and 7

Objective: To demonstrate how the pull of gravity of the moon and sun cause the tides in the ocean basins of the of earth.

Teacher

Preparation: Collect small glass jar with top; iron filings; two magnets (one preferable larger than the other).

Procedure: Place iron filings in glass jar and screw on the top. Place the two magnets in different positions around the jar to simulate the moon and the sun. The larger magnet should represent the sun, but should be farther away. As the magnets are rotated about, the iron filings (represented seawater) should respond to the pull of gravity and should move accordingly in the glass jar. Be sure to point out the connection between magnets and filings and the tidal cycle.

Discussion:

1. What do the iron filings represent? (water)
2. What does the pull of the magnets represent? (gravitational pull of the moon and sun)
3. Why does the smaller magnet cause more attraction of iron filings? (closer)
4. What happens when the magnets are in line on the same side of the jar? What happens on the opposite side. (more pull – again, more pull).



Source: Frankenberg, D., Mauldin, L. (1978). North Carolina Marine Education Manual. Raleigh, North Carolina: UNC Sea Grant Publication.

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South Carolina Science Curriculum Standards (Grades 5,7)

Area I: Inquiry

National Science Education Standards* Grade 5	S.C. Components*
Identify process skills that can be used in scientific investigations	
Observe	1
Infer	5
Predict	6
Design and conduct a scientific investigation	B
Develop descriptions, explanations, predictions, and models using evidence.	B
Think critically and logically to make relationships between evidence and explanations	A
Communicate scientific procedures and explanations	C

National Science Education Standards* Grade 7	S.C. Components*
Identify process skills that can be used in scientific investigations	
Observe	1
Infer	1
Predict	4
Design and conduct a scientific investigation	A,H
Develop descriptions, explanations, predictions, and models using evidence.	B
Think critically and logically to make relationships between evidence and explanations	A
Communicate scientific procedures and explanations	C

Grade	Area	Unit of Study	National Science Education Standards *		S.C. Components
5	III. Earth Science	Changes in the Earth's Surface: landforms and oceans	A. Structure of the Earth System	1. Land forms are the results of a combination of constructive and destructive forces.	j. Infer how waves, currents, tides, and storms affect the geological features of the ocean shore zone.

*Refer to South Carolina Science Curriculum Standards, adopted by the S.C. Board of Education January 12, 2000, for complete national standards and S.C. components.