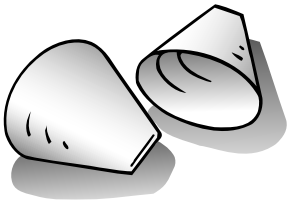
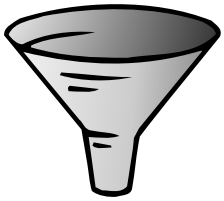
Chapter Science Investigation Name _____

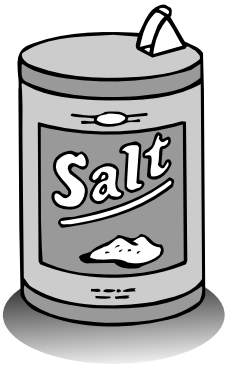
Separating Solutions and Mixtures

What You Need


filter paper

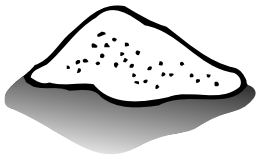

funnel

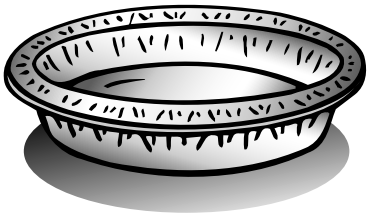
liter pitcher



salt


water


sand


aluminum pie pan

Find Out

Do this activity to learn how you can separate solutions and mixtures.

Process Skills

Measuring
Predicting
Observing
Communicating

Time

- 30 minutes the first day
- 10 minutes each day for one week

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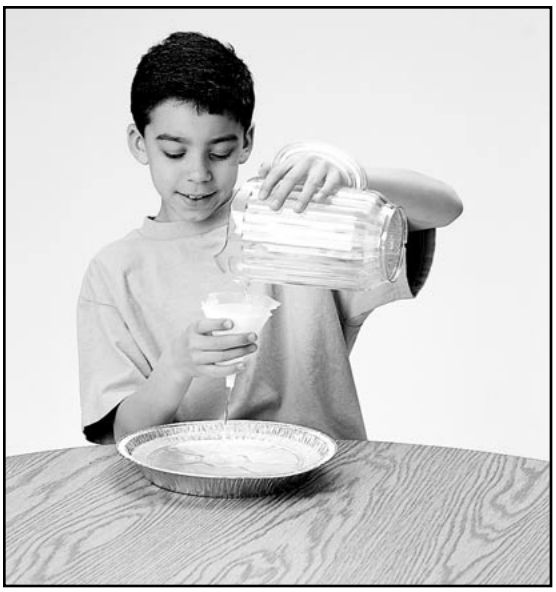


What to Do

1. Place the filter paper inside the funnel.

2. Mix equal parts of sand and salt. Place the mixture inside the funnel.

3. Use the liter pitcher to **measure** 500 mL of water. Hold the funnel over the pie pan. Pour the water into the funnel so that the water empties into the pie pan. **Predict** what will happen.

4. **Observe** what happens and **record** the results on the chart.

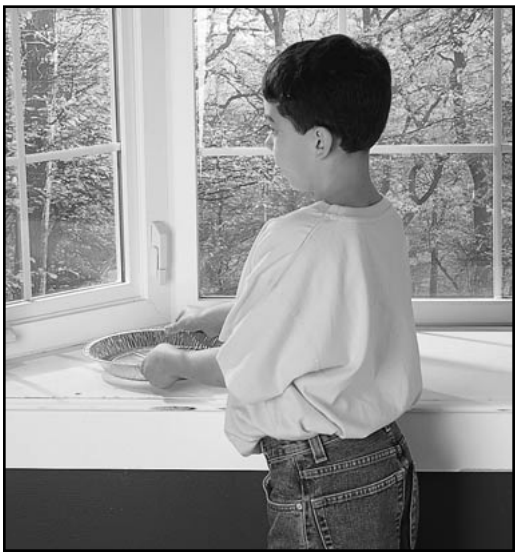
5. Carefully remove the filter and unfold it. Set the filter aside.

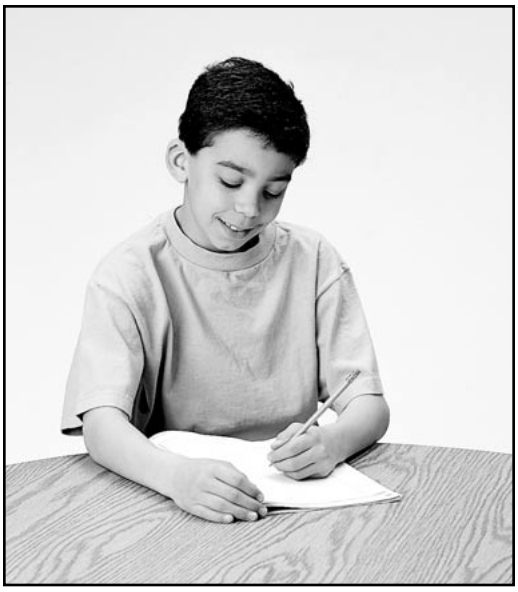
6. **Observe** the water in the pie pan. Put the pan in a window or other sunny place.

7. **Predict** what will happen to the water after it sits in the sun.

8. **Observe** the water every day for one week.

9. **Record** what happens.





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Separating Solutions and Mixtures	
Day/Time	**Observations**
Day 1	
Day 2	
Day 3	
Day 4	
Day 5	

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Conclusions

1. How did you separate the sand from the water?

2. How did you separate the salt from the water?

New Questions

1. What is another way to separate mixtures and solutions?

2. Write a new question you have about mixtures and solutions.

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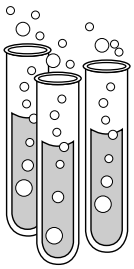

Name _____

ACTIVITY

Describing Matter

The Block

How long is the block? How wide is the block?

What color is the block?

How does the block feel? Is it smooth? Is it hard? Is it rough?

What happens to the block when you put it into a container?

Water

What shape does the water in the measuring cup have?

What happens to the water when you pour it into the bowl?

Pour the water back into the measuring cup. Did the amount change?

Air

What is the shape of the air in the balloon?

How can you change the shape of the air in the balloon?

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Conclusions

1. How was the water different from the block?

2. How was the air inside the balloon different from both the water and the block? Was it easy to change the size and shape of the air?

3. Think about the activity you just did. Complete a chart of characteristics of five different objects.

Asking New Questions

1. What shape does air take when you fill a bicycle tire?

2. Could you pump more air into the bicycle tire without making the tire bigger?

3. List the five objects in the chart you completed. Does each object exist as a solid, a liquid, or a gas? Make a check mark in the columns that apply. Compare your chart with a classmate's chart.

Object	Characteristics	Solid	Liquid	Gas

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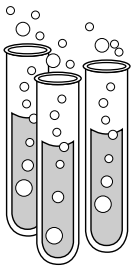

Name _____

ACTIVITY

Observing a Chemical Change

Which pieces of steel wool do you **predict** will rust? Write an X beside each kind you think will rust.

Steel Wool in Water

Steel Wool in Oil and Water

Steel Wool

What happened to the three pieces of steel wool? Which pieces rusted? Write an X beside each kind that rusted.

Steel Wool in Water

Steel Wool in Oil and Water

Steel Wool

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Name _____

Conclusions

1. What kinds of matter formed the rust?

2. Is rust the result of a physical change or a chemical change? Why?

3. Compare your predictions about changes to the steel wool to your observations.

Asking New Questions

1. What other objects around you do you think might rust?

2. What would need to happen before rust could form on these objects?

3. How do you think you could prevent rust?

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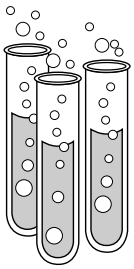

Name _____

ACTIVITY

Measuring a Change in Energy

How far did the marble roll? **Record** your measurements.

Pencil	**Book**
Trial 1	
Trial 2	

Draw a picture that shows how far the marble rolled when you used the book.

Trial 1

Trial 2

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Name _____

Conclusions

1. Which ramp caused the marble to roll farther, the pencil ramp or the book ramp? Why?

2. At what point in this activity did the marble have the most stored energy?

3. Were your measurements the same the second time you made them?

Asking New Questions

1. What would happen if you made the ramp even higher by putting two books under the raised end?

2. What sports activities use stored energy to make people and objects move quickly?

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