Sugar Shines

The story you’ll read today talks about how sugar shines. A grain of sugar is much smaller than an ant. It is no bigger than a grain of sand.
The picture shows what a grain of sugar would look like if it were big. The grain in the picture has sharp corners. Each side is very smooth. The sugar looks like glass. And the sugar shines like glass.

---

C

Nancy Finds Something to Eat

Nancy was shouting and waving her arms, but her mother and the police officer didn’t see her as they walked from the room. Although Nancy ran as fast as her tiny legs could move, she couldn’t keep up with them. By the time she reached the doorway to her bedroom, she was tired. For her mother and the police officer, the walk to the doorway took only a few steps. But for Nancy it was a long, long run.

Nancy decided not to follow her mother beyond the bedroom door. Nancy didn’t want to get lost. So she stood there trying to catch her breath.

Then she walked slowly back toward her dollhouse. On the way, she looked at all the bits and pieces of things that were stuck in the carpet. Between those giant ropes of
blue and green were giant pieces of dirt and giant crumbs. One crumb was the size of a bucket next to Nancy. It was a cookie crumb. “I wonder how long it’s been here,” Nancy said to herself. “I wonder if it’s stale.” She felt silly for the thought that was going through her head. She was thinking, “If that cookie crumb is any good, I’ll eat the whole thing. It will be like eating the world’s biggest cookie.”

So she bent over and sniffed the cookie crumb. Then she tapped it with her fist. Then she broke off a little piece. That piece sparkled with shiny sugar. Slowly, she brought the piece of cookie to her mouth and took a tiny bite from it. “Not bad,” she said to herself. “Not bad at all.” She took a big bite and another. With two hands she lifted up the whole crumb and began to eat it. She ate about half of it, and then she stopped. She wasn’t hungry any more.
“I need a glass of water,” she said to herself. She didn’t really need a glass of water. She needed much less than a drop of water. But how do you get water when you’re smaller than a fly? How do you get water if you can’t reach something as high as a sink? “Water,” Nancy said to herself. “I must find water.”

MORE NEXT TIME

**D** Number your paper from 1 through 17.

**Skill Items**

Use the words in the box to write complete sentences.

thrown  changed  stationed  motioned
opposite  wonder  flight  after  ahead

1. Hunters were __________ at __________ ends of the field.
2. He __________ to the __________ attendant __________ of him.

**Review Items**

3. In which season is the danger of forest fires greatest?

4. Camels can go for __________ days without drinking water.

5. How many pounds of water can a 1 thousand-pound camel drink at one time?

6. Which is longer, an inch or a centimeter?

7. How many legs does an insect have?

8. How many legs does a flea have?
9. If a fly is an insect, what else do you know about a fly?

10. Which is longer, a centimeter or a meter?

11. How many centimeters long is a meter?

12. A toad catches flies with its [ ].
   - tongue   - feet   - legs

13. Why do flies stick to a toad’s tongue?
   - because the tongue is sticky
   - because the tongue is dirty
   - because the tongue is dry

14. If an ant weighed as much as a dog, the ant could carry an object as heavy as [ ].

15. When do trees begin to grow?
   - in the winter   - in the spring

16. Trees begin to grow when their roots get [ ].

17. Camel hooves keep camels from sinking in sand. How are camel hooves different from pig hooves?
   - They are harder and longer.
   - They are sharper and smaller.
   - They are wider and flatter.
Name ____________________________

A

1. If a grain of sugar were very big, it would look like a box made of ____________________________.

2. What kind of corners does a grain of sugar have? ____________________________

3. A grain of sugar is no bigger than a grain of ____________________________.

B  Story Items

4. What did Nancy say to get small? ____________________________

5. The walk to the bedroom doorway was much longer for Nancy than for her mother because Nancy ____________________________.

6. In this story, Nancy found something to eat. What did she find? ____________________________

7. To Nancy it was the size of ____________________________.

8. Why did she sniff it before she started eating it?
   • to see if it was salty
   • to see if it was big
   • to see if it was stale

9. How much of it did she eat?
   • half
   • all
   • none

10. Why didn’t she eat the whole thing? ____________________________
11. After Nancy finished eating, she wanted something. What did she want?

12. Did she know how she was going to get it?

13. **Circle** the picture that could be Nancy standing next to the big crumb she found.

   A  B  C  D

14. **Underline** what Nancy has learned about being so small.

   - Her voice got squeaky.
   - The cookie crumb got bigger.
   - Her bed got bigger.

**Skill Items**

15. Write 2 ways that tell how object A is different from object B.

   1. 
   2. 

**GO TO PART D IN YOUR TEXTBOOK.**
A

1. finally
2. easily
3. closely
4. slowly
5. probably
6. early

2. building
1. wobbled
3. stretched
4. thirsty
5. weighs
6. moving

3. hoist
1. tough
2. sweater
3. squirrel
4. dew
5. forty

4. cover
1. discover
2. discovered
3. finished
4. umbrella

5. water strider
1. lawn
2. learn
3. tube
4. traffic
**B Water Has a Skin**

The next story tells about the skin that water has. You can see how that skin works by filling a small tube with water. Here’s a picture of what you will see.

- The top of the water is not flat.
- The skin bends up in the middle.

---

**C Facts About Dew**

The story you’ll read today talks about dew. The drops of water that you see on grass and cars early in the morning is called dew.

Here are some facts about dew:
- Dew forms at night.
- Dew forms when the air gets cooler.
- Dew disappears in the morning when the air warms up.
Nancy Tries to Get Some Water

If Nancy knew more about very small things, she wouldn’t have been so afraid of climbing to high places to find water. Here’s the rule: If tiny animals fall from high places, they don’t get hurt. If we dropped an ant from a high airplane, the ant would not be hurt at all when it landed on the ground. A mouse wouldn’t be hurt either. A squirrel wouldn’t be badly hurt. A dog would probably be killed. And you can imagine what would happen to an elephant.

Nancy was thirsty, so thirsty that she wanted to yell and scream and stamp her feet like a baby.

Nancy knew that it wouldn’t do any good to act like a baby. So she made up her mind to start thinking. She was pretty smart. She said to herself, “If it were early morning, I could go out and drink dew from the lawn.” But the grass was not moist with dew, and Nancy couldn’t wait until morning.

So she went to the bathroom, looking for water. She had walked from her bedroom to the bathroom hundreds of times before, but this time it wasn’t a walk. It was a long, long trip. She finally arrived in the bathroom. She walked around as she made up a plan for getting water. Here’s that plan: She would climb up the corner strip of the cabinet. That strip was made of rough wood and it was easy to grip. It went straight to the top of the cabinet.
Nancy didn’t know what kind of problem would meet her at the top of the cabinet. But first she had to get to the top. So up she went. She hoisted herself up one centimeter, two centimeters. Slowly, up. Then she began moving faster and faster. “This isn’t too hard,” she said to herself. When she was almost at the top, she reached a spot where the strip was moist with oil. And she slipped. She fell all the way to the floor.
The fall scared her. She landed on her back. For a moment she didn’t move. Then she got up slowly, testing her arms and legs to make sure that they weren’t hurt. She had fallen from something that was a hundred times taller than she was, but she wasn’t hurt. She wasn’t hurt at all, not one broken bone. Not one scratch. Not even an ouch.

“I don’t know what’s happening,” Nancy said to herself. “But I’m not afraid to try climbing that cabinet again.”

This time she got to the top.

MORE NEXT TIME

**Number your paper from 1 through 14.**

**Skill Items**

Here’s a rule: **Horses eat grass.**

1. A cow is not a horse. So what does the rule tell you about a cow?
2. Jake is not a horse. So what does the rule tell you about Jake?
3. Meg is a horse. So what does the rule tell you about Meg?
Review Items

4. Roots keep a tree from ___.
5. Roots carry ___ to all parts of the tree.
6. Camels can go for ___ days without drinking water.
7. How many pounds of water can a 1 thousand-pound camel drink at one time?

Some of the lines in the box are one inch long and some are one centimeter long.

8. Write the letter of every line that is one centimeter long.
9. Write the letter of every line that is one inch long.
10. What part of the world is shown on the map? The map shows how far apart some places are. One line shows 13 hundred miles. The other line shows 25 hundred miles.
11. How far is it from F to G?
12. How far is it from H to K?

13. If a grain of sugar were very big, it would look like a box made of ________.
14. What kind of corners does a grain of sugar have?
Name __________________________

A

1. What does the top of water have?  • a puddle  • hair  • skin

2. Look at the picture.
   The tube is filled with water.
   Draw the skin that covers the top of the water.

B

3. You can see drops of water on grass early in the morning. What are those drops called? __________________________________

4. Does dew form in the middle of the day? ________________________

5. Dew forms when the air gets ____________.
   • warmer  • cooler  • windy

C  Story Items

6. If tiny animals fall from high places, they don’t _____________________.

7. When Nancy was thirsty, she didn’t scream and yell and stamp her feet. Why not?
   • She was tired.  • She was thirsty.
   • Nobody would hear her.

8. There wasn’t any dew on the grass because it was not ____________.
   • morning  • hot  • evening

9. Where did Nancy go to look for water?
   • to the bedroom  • to the bathroom  • to the kitchen
10. Nancy slipped on the strip of wood because it was ______.
   - hot    - moist with oil    - sticky

11. The cabinet was a ___________ times taller than Nancy.

12. Did Nancy get hurt when she fell? ____________________________

13. Why not? ____________________________

These animals fell from a cliff. **Underline** the words that tell what happened to each animal.

14. ant
   - not hurt
   - hurt
   - killed

15. mouse
   - not hurt
   - hurt
   - killed

16. dog
   - not hurt
   - hurt
   - killed

17. squirrel
   - not hurt
   - hurt
   - killed

18. horse
   - not hurt
   - hurt
   - killed

**Skill Items**

19. Write 2 ways that tell how object A is different from object B.

1. ____________________________

2. ____________________________

Object A

Object B

© SRA/McGraw-Hill. All rights reserved.
More About the Skin That Water Has

When we fill a tube with water, you can see that the water has a skin. You can use a dish of water and a hair to show that water has a skin.
First you can float a hair on water. If you’re careful, the hair won’t even get wet. It will just rest on the skin of the water.

Hair A in the picture is resting on the water.

Look at hair B. The end of that hair is pushed down through the skin of the water. As the hair goes down, the skin of the water bends down around the hair. Look at the skin around hair B.

The end of hair C is under the water. But hair C is moving up. When the hair moves up slowly, the skin hangs onto the hair and bends up. Remember, when the hair goes up, the skin bends up. When the hair goes down, the skin bends down.
Nancy Gets Some Water

Nancy had climbed to the top of the cabinet. She was ready to have a nice drink of water. Next to the sink there were lots of drops of water. Some drops were bigger than she was. Some drops were about the size of an open umbrella top. She rushed over to them.

Nancy didn’t know much about water drops. Here’s the rule: **Water drops have a skin that goes all the way around them.** That skin is tough. If you are at a pond, you may see little insects called water striders that walk right on top of the water. They are walking on the skin of the water.

If you look closely, you can see that the legs of water striders make little dents in the water but their legs do not go into the water. The legs just bend the skin of the water down without going through the skin.

Nancy had seen water striders, but she didn’t think about how tough the skin of water must be if you are very small. She ran over to one drop of water. The drop of water came up to her knees. Then she bent over and touched the water drop with her hands. It felt like a water
balloon. When she pushed, the skin moved in. But her hands didn’t go through the skin. ✨ “How do insects drink water?” she thought for an instant. Then she got back to her problem. “How am I going to drink?”

“I’ll just hit it harder,” she thought. She made a fist, wound up and swung as hard as she could swing. Her fist went right through the skin of the drop. Her hand was wet and her arm was wet. She pulled her hand back, but it didn’t come out easily. It stuck at the wrist.

She pulled and tugged, and the skin of the water stretched out. Finally, pop. Her hand came out, and the skin of the drop wobbled back into its round shape.

Nancy thought about the best way of getting water from the drop. At last, she backed up a few steps, put her head down, and charged the drop of water. Her head hit the water drop and pop. Her head went through the skin.
She drank quickly, trying not to get water in her nose. Then she pulled her head back. The skin of the water tugged at her neck. The water pulled at her neck the way a tight sweater pulls on your neck when you try to take it off. Nancy pulled hard, and **pop**. Her head came out of the drop.

“That was scary,” she said out loud.

MORE NEXT TIME

---

**D** Number your paper from 1 through 22.

**Story Items**

1. Some drops of water were ___ than Nancy.
   - bigger       - older       - hotter

2. When Nancy first touched the water drop, did her hand get wet?
3. What did Nancy have to do to get her hand inside the water drop?
   - look at the drop
   - hit the drop
   - touch the drop
4. Did Nancy get her head inside the water drop?
5. What happened when Nancy tried to pull her head back out of the water drop?
   - It got smaller.
   - It got stuck.
   - It got wet.
6. Write the letters of the water striders.

List the three things that Nancy has learned about being very small.
7. Small animals have a voice that is
8. Small animals don’t get hurt when they
9. Water has a
10. Is a water strider an insect?
11. How many legs does a water strider have?
12. How many legs does an ant have?
13. How many legs does a spider have?
14. How many legs does a flea have?
15. How many legs does a cat have?

**Skill Items**

16. Write one way that tells how both objects are the same.
17. Write 2 ways that tell how object A is different from object B.

![Image of Object A](image1.png)

Object A

![Image of Object B](image2.png)

Object B
Write the word from the box that means the same thing as the underlined part of each sentence.

<table>
<thead>
<tr>
<th>heard</th>
<th>hoisted</th>
<th>long</th>
<th>sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>lawn</td>
<td>silly</td>
<td>boomed</td>
<td>stale</td>
</tr>
</tbody>
</table>

18. The cake was old and not very good to eat.
19. The grass was wet after the rain.
20. They lifted the TV onto the truck.

Review Items

21. The names in one box tell about time. Write the letter of that box.
22. The names in one box tell about length. Write the letter of that box.

A  centimeter  inch  meter  mile
B  week  year  second  month  minute  hour
A

Some hairs in the picture are being pushed down. Some are being pulled up. Look at the skin around each hair.

1. Make an arrow like this ↑ on every hair that is moving up.
2. Make an arrow like this ↓ on every hair that is moving down.

B

Review Items

Things that are this far apart ← → on the map are 2 miles apart.

Things that are this far apart ← → are 4 miles apart.

3. Write 2 in the circle if the line stands for 2 miles.
4. Write 4 in the circle if the line stands for 4 miles.
5. How far is it from the school to the field? ____________
6. How far is it from the lake to the park? ____________
7. What does the top of water have?  • hair  • skin  • nails

8. A mile is a little more than ___ feet.

   • 1 thousand  • 5 thousand  • 5 hundred

9. If an ant weighed as much as a dog, the ant could carry an object as heavy as ____________________________.

10. The tube is filled with water. Draw the skin that covers the top of the water.

11. You can see drops of water on grass early in the morning. What are those drops called? ____________________________

12. If tiny animals fall from high places, they don’t ____________________________.

13. Does dew form in the middle of the day? ____________________________

14. Dew forms when the air gets ___.

   • warmer  • windy  • cooler
A

1. discovered
2. frightened
3. wondered
4. finished
5. complained
6. learned
7. supposed

2

1. houseflies
2. forever
3. baseball
4. football

3

1. stale
2. grams
3. search
4. moving
5. traffic
6. forty
7. couple

4

1. decision
2. refrigerator
3. weighs
4. dining
5. chunk
6. toast

5

1. hoist
2. lawn
3. reply
4. replied
5. thirty
6. unit

B

Grams

In some stories, you’ve read about things that do not weigh very much. When we weigh very small things, the unit we use is grams.

Here’s a rule about grams: All grams are the same weight.
If you had a block of water that was one centimeter on all sides, that block would weigh one gram.

A pencil weighs more than a gram. A long pencil weighs about five grams. A short pencil weighs about two grams.

C Nancy Is Hungry Again

Nancy found out three things about being very small. She found out that small things have very high voices. She also discovered that very small things do not hurt themselves when they fall from high places. The third thing she discovered was that a drop of water is very different to someone who is quite small.

During her first night of being small, Nancy found out a fourth fact about being small. Here’s the rule: **The food that a very small animal eats each day weighs more than the animal.**

Let’s say a small animal weighs one gram. The food that the animal eats each day weighs more than one gram. The food that bigger animals eat each day does not weigh as much as the animals. An elephant may eat two hundred pounds of food each day, but the elephant may weigh more than a thousand pounds. An adult human may eat five pounds of food each day, but the adult weighs much more than five pounds. A large dog may eat three pounds of food every day but the dog may weigh more than 80 pounds. ✤
Nancy learned this rule during the first night that she was very small. She woke up in the middle of the night. She was very hungry. So she got up from her dollhouse bed and went looking for another chunk of cookie that was on her rug. She found one and ate it. Then she felt thirsty, so she went back to the bathroom, climbed to the top of the cabinet, and drank from a drop of water.

“That’s scary,” she said when she finished.

She went back to bed in her dollhouse, but before the sun came up, she woke up again. She was hungry. The cookie crumbs were gone so she couldn’t eat cookie crumbs. She tried to forget about how hungry she was. She knew that she had already eaten a chunk of cookie that weighed almost as much as she did. She wondered, “How can I still be hungry?”

The feeling of hunger did not go away. After a few minutes, she got out of bed. “Oh nuts,” she said. “I’m going to have to go hunting for food.”

MORE NEXT TIME
Number your paper from 1 through 14.

Skill Items

1. Write one way that tells how both objects are the same.
2. Write 2 ways that tell how object A is different from object B.

![Object A](image1.png) ![Object B](image2.png)

3. The traffic was moving 27 miles per hour. How fast was the traffic moving?
4. If the traffic was moving 27 miles per hour, how far would a car go in one hour?
5. What word in the sentence refers to all the cars and trucks that were moving on the street?
6. What word means each?
**Review Items**

7. Which arrow shows the way the air leaves the balloon?
8. Which arrow shows the way the balloon will move?

9. Write the letters of the 4 names that tell about length.
   a. minute    d. centimeter    g. mile    i. year
   b. hour      e. second        h. meter    j. inch
   c. day       f. week

Look at the skin around each hair.
- Make an arrow like this $\uparrow$ if the hair is moving up.
- Make an arrow like this $\downarrow$ if the hair is moving down.
1. When we weigh very small things, the unit we use is _________.

Some things in the picture weigh 1 gram. Some weigh 2 grams. Some weigh 5 grams. Fill in the blanks to tell how much each object weighs.

2. ________
3. ________
4. ________
5. ________
6. ________

B Story Items

7. The food that a very small animal eats each day weighs _________.

8. Is a mouse a small animal? _________.

9. Does the food a mouse eats each day weigh more than the mouse? _________.

10. Are you a small animal? _________.

11. Does the food that you eat each day weigh as much as you do? _________.

12. How many times did Nancy wake up during the night? _________.

© SRA/McGraw-Hill. All rights reserved.
13. Why did she wake up? 

14. What did Nancy eat the first time she woke up? 

15. Why didn’t Nancy eat a cookie crumb the second time she woke up? 

16. The food that 3 of the animals eat each day weighs more than those animals. **Circle** those animals.

![Diagram showing animals and food items]

17. Small animals don’t get hurt when they 

18. Small animals have a voice that is 

19. Water has a 

---

**Review Item**

- Here's what you see through the circles made by your hands.
- Draw what you would see through strong binoculars.

---

GO TO PART D IN YOUR TEXTBOOK.
More About Grams

You learned about grams. You know that grams are used to weigh some kinds of things.

You know how much water it takes to weigh one gram. You know how much a long pencil weighs. You know how much a short pencil weighs.

Here are some facts about how much other things weigh. A big cherry weighs about ten grams. An apple weighs about two hundred grams.
Most insects weigh much less than a gram. Even a very big spider like the spider in the picture weighs less than a gram.

It would take about one hundred ants to weigh one gram.

It would take about thirty houseflies to weigh one gram.
It would take about two hundred fleas from Russia to weigh one gram.

The picture below shows how much a big beetle weighs. How many grams of water are on the scale? So how much weight is on the side of the scale with the beetle?

Nancy Finds Some More Food

Nancy went toward the kitchen. The walk seemed to take forever. The house was dark and Nancy couldn’t see well, so she felt the walls and walked slowly toward the kitchen. When she was in the dining room, she could hear
the sound of the refrigerator. In fact, she could feel the refrigerator. It shook the floor.

Finally, Nancy reached the kitchen. By now, she was so hungry that she wanted to scream and cry and kick and roll around on the floor like a baby. But she didn’t do any of those things because she knew that acting like a baby wouldn’t do any good. So she opened her eyes wide and tried to look for scraps of food.

Near the refrigerator, she found something. She bent over and sniffed it. She wasn’t sure what it was, but it smelled bad. “I’m not that hungry,” she said. “I’ll bet that chunk of food has been on the floor for a week.”

Nancy walked nearly all the way around the kitchen, but she couldn’t find any other food. “I’ll bet there’s food on the counter,” she said to herself.

Up she went, without feeling frightened. She reached the top and began to search the counter.

She smelled it before she saw it—toast. She followed her nose. In the darkness, she could just see the toast. Three pieces of toast were piled on a plate. To Nancy, the pile of toast looked like a giant ten-story building.
Nancy was wondering how to climb onto the plate so that she could reach the toast. But when she started to walk around the plate, she found crumbs all over the counter. There were crumbs that seemed as big as baseballs and crumbs as big as footballs. There was even one crumb that was the size of a chair.

Nancy picked up a crumb that was the size of a football. She ate it with a loud, “Chomp, chomp, chomp.”

When Nancy had been full-sized, she hated toast. She complained when her mother served it. “Oh, not that stuff,” she used to say. “I hate toast.”
Now that she was small and hungry all the time, she didn’t hate toast. In fact, that crumb of toast tasted so good that she ate another piece the size of a football.

Nancy weighed much less than a gram. In one day, she had eaten food that weighed a gram.

MORE NEXT TIME

D Number your paper from 1 through 14.
1. Does a housefly weigh more than a gram or less than a gram?
2. Does a glass of water weigh more than a gram or less than a gram?
3. How many ants would it take to weigh one gram?
4. How many grams are on the left side of the scale?
5. So how much weight is on the side of the scale with the water striders?
6. Which weighs more, one gram or one water strider?
Skill Items
Use the words in the box to write complete sentences.

stationed  traffic  after  ahead  opposite
per  motioned  wonder  attendant

7. He [___] to the flight [___] of him.
8. The [___] was moving forty miles [___] hour.

Review Items
9. Write the letters of the 4 names that tell about time.
   a. week  b. inch  c. centimeter  d. second
   e. minute  f. meter  g. hour
10. If a grain of sugar were very big, it would look like a
    box made of [___].
11. What kind of corners does a grain of sugar have?
12. When we weigh very small things, the unit we use is [___].
13. The food that 3 of the animals eat each day weighs as much as those animals. Write the letters of those animals.

14. The food that 4 of the animals eat each day does not weigh as much as those animals. Write the letters of those animals.
Name ______________________

Story Items

1. Why couldn't Nancy see very well when she walked to the kitchen?
   - She was tired.       - It was dark.       - She was hungry.
2. Why didn't Nancy act like a baby when she was very hungry?
   - She was mad.       - Her voice was too small.
   - Crying wouldn't do any good.
3. Was Nancy frightened when she climbed the kitchen counter?

______________________________________________________________
4. If she fell, she wouldn't get ________________________________.
5. What did Nancy smell on the kitchen counter? ______________
6. How many pieces of toast were on the plate? ___________________
7. That pile looked as tall as a ____________________________ to Nancy.
8. Did Nancy have to climb the pile of toast to get something to eat?

_____________________________________________________________
9. What did she find to eat on the counter? ______________________
10. How many toast crumbs did Nancy eat? _______________________
11. Each crumb was as big as _________________________________.
12. Nancy hated toast when she was full-sized. Why doesn't she hate toast now? ________________________________

____________________________________________________________
13. How much does Nancy weigh?
   - almost a gram       - much less than a gram       - a gram
14. Nancy ate a lot of food in one day. How much did that food weigh?

_____________________________________________________________
15. Water has a ___________________________

16. Small animals don’t get hurt when they ___________________________

17. The food that a small animal eats each day weighs ___________________________

18. Small animals have a voice that is ___________________________

**Skill Items**

19. Write one way that tells how both objects are the same.

________________________

20. Write 2 ways that tell how object A is different from object B.

1 __________________________

2 __________________________

Object A

Object B

**Review Items**

Here are names that tell how fast things move.

a. centimeters per month

b. miles per week

c. meters per year

d. inches per second

21. **Circle** the part of each name that tells about length.

22. **Underline** the part of each name that tells about time.

GO TO PART D IN YOUR TEXTBOOK.