6 How to • • • • • • • • • • • • • • • • • • Measure Weight

Learning Notes

In this unit, children will use tables showing the ratios between ounces and pounds, grams and kilograms, and pounds and kilograms. They will estimate whether an object should be weighed in ounces or pounds and whether an object should be weighed in grams or kilograms. The children will use a calculator to convert pounds to kilograms and kilograms to pounds.

Materials

- calculators
- bathroom scale
- balances with weights (or use teddy bear counters, beans, unifix or multilink cubes, etc.)
- items to weigh—fruit, crayons, paper towels, erasers, books, etc.

Teaching the Lesson

Introduce the concept of weight through modeling how to use the bathroom scale and the balance.

Ask the children which kind of scale is best for weighing heavy objects (bathroom scale) and which kind of scale is best for weighing light objects (balance).

Have the children practice weighing different objects with the balance. Then order the objects by weight, from lightest to heaviest.

When using the balance, follow the steps below.

Step 1

Place the item to be weighed (crayons) on one side of the balance.

Step 2

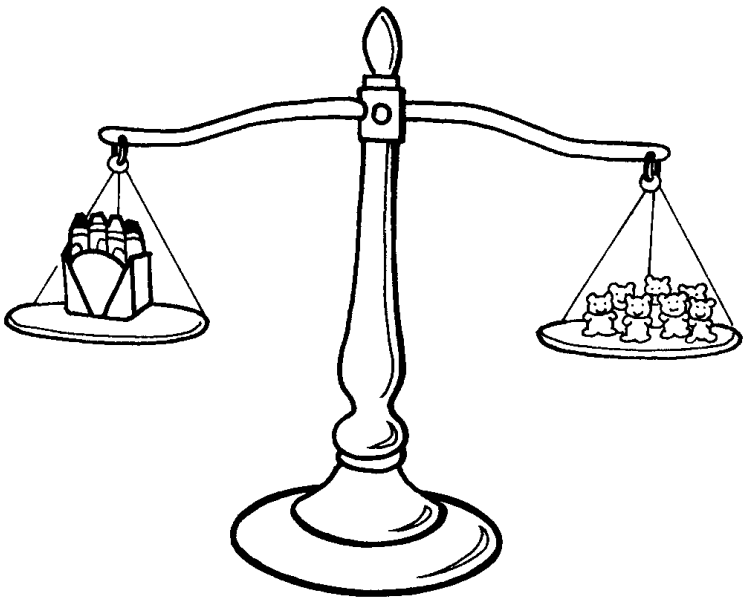
Put the weights (teddy bear counters) one at a time on the other side of the balance. Continue adding weights to the balance until both sides of the balance are at the same level.

Step 3

Add up the weights used to make the crayons balance.

Step 4

Record the weight of the crayons.



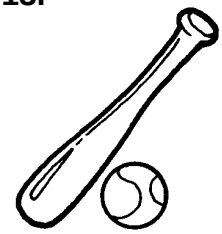
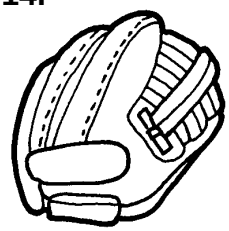
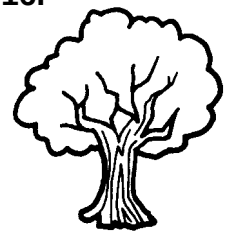
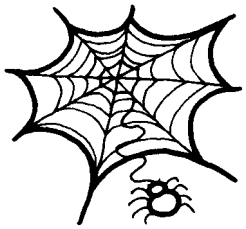
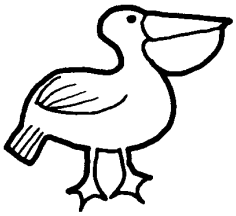
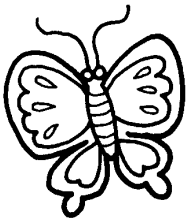
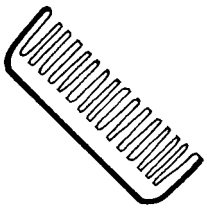
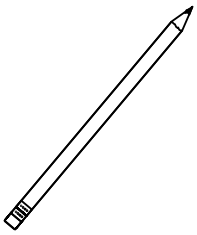
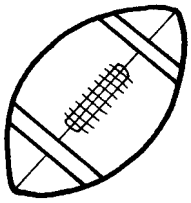
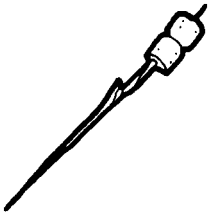
The crayons weighed 7 teddy bear counters.

6 Practice • • • • • • • • • • • • • • • • Ounces and Pounds

Directions: There are 16 ounces in 1 pound. Complete the chart.

Ounces (oz.)	16	**1.**	48	**2.**	80	**3.**	112	**4.**	**5.**	160
Pounds (lbs.)	1	2	**6.**	4	**7.**	**8.**	**9.**	**10.**	9	**11.**

Directions: Look at the objects below. Figure out the best measurement to use to weigh each object. Circle "oz." for ounces or "lb." for pounds.

12. 	**13.** 	**14.** 	**15.** 	**16.** 
oz. lb.	oz. lb.	oz. lb.	oz. lb.	oz. lb.
17. 	**18.** 	**19.** 	**20.** 	**21.** 
oz. lb.	oz. lb.	oz. lb.	oz. lb.	oz. lb.
22. 	**23.** 	**24.** 	**25.** 	**26.** 
oz. lb.	oz. lb.	oz. lb.	oz. lb.	oz. lb.

Challenge

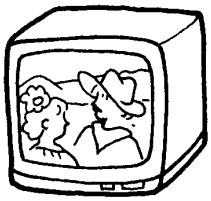
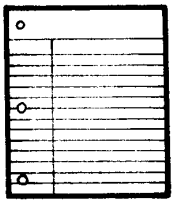
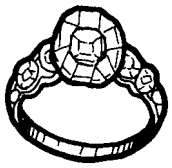
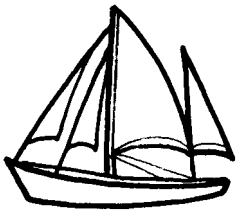
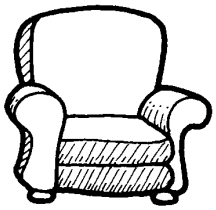
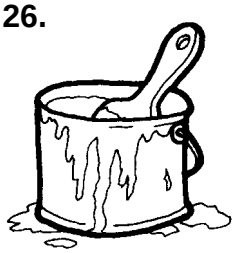
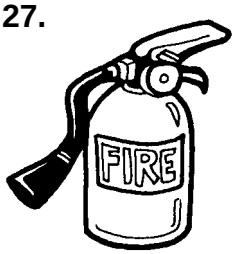
Figure out how much you weigh in ounces by taking your weight in pounds and multiplying it by 16. How much do you weigh in ounces? _____ ounces

6 Practice • • • • • • • • • • • • • • Grams and Kilograms

Directions: Complete the chart.

Grams (g)	1,000	2,000	**1.**	**2.**	5,000	**3.**	**4.**	8,000	**5.**	**6.**
Kilograms (kg)	**7.**	2	**8.**	**9.**	**10.**	6	**11.**	**12.**	**13.**	10

Directions: Look at the objects below. Would you use grams (g) or kilograms (kg) to weigh the object? Circle "g" for grams or "kg" for kilograms.

14. 	**15.** 	**16.** 	**17.** 	**18.** 
g kg	g kg	g kg	g kg	g kg
19. 	**20.** 	**21.** 	**22.** 	**23.** 
g kg	g kg	g kg	g kg	g kg
24. 	**25.** 	**26.** 	**27.** 	**28.** 
g kg	g kg	g kg	g kg	g kg

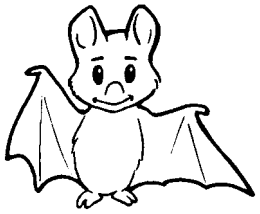
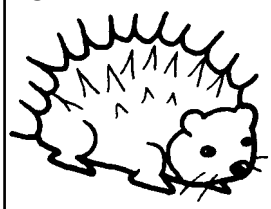
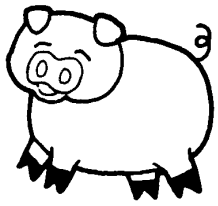
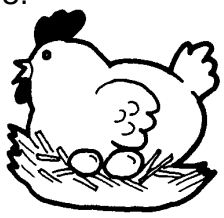
Challenge

Use a calculator to figure out how much you weigh in kilograms by taking your weight in pounds and multiplying it by .454. How much do you weigh in kilograms? _____ kg

6 Practice • • • • • • • • • • • • • Pounds and Kilograms

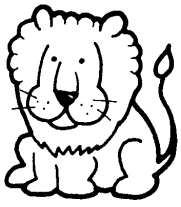
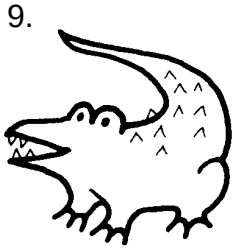
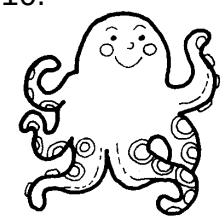
Pounds (lbs.)	1	2	3	4	5	6	7	8	9	10
Kilograms (kg)	.45	.90	1.35	1.80	2.25	2.70	3.15	3.60	4.05	4.50

Directions: Each animal's weight is shown in pounds (lbs.). Figure out each animal's weight in kilograms (kg) and write the answer in the box. Use the above chart to help you.

1. 	2. 	3. 	4. 	5. 
2 lbs.	1 lb.	5 lbs.	7 lbs.	4 lbs.
kg	kg	kg	kg	kg

Kilograms (kg)	1	2	3	4	5	6	7	8	9	10
Pounds (lbs.)	2.2	4.4	6.6	8.8	11	13.2	15.4	17.6	19.8	22

Directions: Each animal's weight is shown in kilograms (kg). Figure out each animal's weight in pounds (lbs.) and write the answer in the box. Use the above chart to help you.

6. 	7. 	8. 	9. 	10. 
lbs.	lbs.	lbs.	lbs.	lbs.
3 kg	6 kg	9 kg	10 kg	8 kg

Answer Key

Page 6

1.–6. Answers will vary.

7. Yes, because I would need to use fewer fingers.

Page 7

1.–10. Answers will vary.

Page 8

1.–9. Answers will vary.

10. If my foot was longer than 12 inches, it would take fewer feet to measure items.

Page 10

1.–8. Answers will vary.

Page 11

1.–10. Answers will vary depending upon the measurement tool used.

Page 12

1.–3. Answers will vary.

Page 14

1. 4 inches
2. 3 inches
3. 2 inches
4. 5 inches
5. less
6. less
7. less
8. more
9. less
10. less

Page 15

1. 30 in.; $2\frac{1}{2}$ ft.
2. 6 in.; $\frac{1}{6}$ yd.
3. $1\frac{1}{2}$ ft.; $\frac{1}{2}$ yd.
4. 36 in.; 1 yd.
5. 12 in.; 1 ft.
6. 2 ft.; $\frac{2}{3}$ yd.
7. 24 in.; 2 ft.
8. 18 in.; $\frac{1}{2}$ yd.

Page 16

Number of miles for each state highway:

State Highway 1: 50 miles
State Highway 2: 20 miles
State Highway 3: 60 miles
State Highway 4: 40 miles
State Highway 5: 30 miles
State Highway 6: 100 miles
State Highway 7: 60 miles
State Highway 8: 60 miles

1. 150 miles
2. 170 miles
3. 8 to 5 to 3 to 2
4. 3 to 2 to 1 to 4; or 5 to 6; or 5 to 8 to 7
5. 3 to 2 to 1 to 4 = 170 miles; 5 to 6 = 130 miles; 5 to 8 to 7 = 150 miles
6. 6 to 4; or 5 to 3 to 2 to 1; or 8 to 7 to 4
7. 6 to 4 = 140 miles; 5 to 3 to 2 to 1 = 160 miles; 8 to 7 to 4 = 160 miles
8. 6; or 8 to 7; or 5 to 3 to 2 to 1 to 4
9. 6 = 100 miles; 8 to 7 = 120 miles; 5 to 3 to 2 to 1 to 4 = 200 miles
10. Answers will vary.

Page 18

1. 4 cm
2. 6 cm
3. 3 cm
4. 6 cm
5. 4 cm
6. 8 cm
7. 6 cm
8. 1 cm

Page 19

1. 3 + 3 + 3 = 9 cm
2. 3 + 2 + 5 + 2 = 12 cm
3. 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 8 cm
4. 2 + 2 + 2 + 2 = 8 cm
5. 3 + 3 + 6 + 2 = 14 cm
6. 2 + 6 + 7 = 15 cm

Page 20

1. 9 cm
2. 2 cm

3.–7. Answers will vary.

Page 22

1. gallon—4 quarts
2. 2 quarts—8 cups
3. 2 cups—1 pint
4. 2 pints—1 quart
5. 16 cups
6. 4 pints
7. $\frac{1}{2}$ pint
8. 1 gallon
9. 4 cups
10. 4 quarts
11. $\frac{1}{2}$ gallon
12. 1 quart

Page 24

1. L
2. L
3. L
4. dL
5. dL
6. dL
7. dL
8. dL
9. dL
10. dL
11. L
12. dL
13. dL
14. dL
15. L

Page 26

1. 32
2. 64
3. 96
4. 128
5. 144
6. 3
7. 5
8. 6
9. 7
10. 8
11. 10
12. lb.
13. lb.
14. oz.
15. oz.
16. lb.
17. oz.
18. oz.
19. lb.
20. oz.
21. lb.
22. oz.
23. oz.
24. oz.
25. lb.
26. oz.

Challenge: Answers will vary.

Page 27

1. 3,000
2. 4,000
3. 6,000
4. 7,000
5. 9,000
6. 10,000
7. 1
8. 3
9. 4
10. 5
11. 7
12. 8
13. 9
14. kg
15. g
16. g
17. g
18. kg
19. g
20. g
21. g
22. kg
23. g
24. kg
25. kg
26. kg
27. kg
28. g

Challenge: Answers will vary.

Page 28

1. .90
2. .45
3. 2.25
4. 3.15
5. 1.80
6. 6.6
7. 13.2
8. 19.8
9. 22.0
10. 17.6

Page 30

Numbers on the face of the clock: (5), (10), 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 (or 0)

1. 2
2. 7
3. 8
4. 1 and 2
5. 4 and 5
6. 11 and 12
7. 60 minutes
8. 6:05
9. 6:15
10. 12:00
11. 5:10
12. 11:30
13. 8:45