Merit Tutoring

WORKSHEET 15

Estimation & Rounding

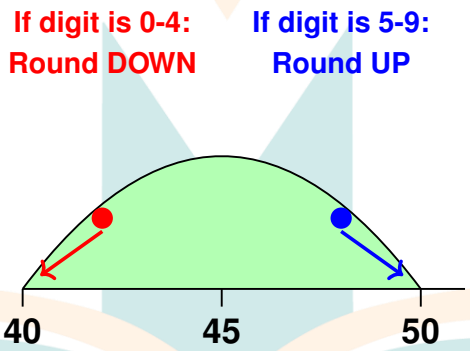
Year 5 Mathematics — Operations (Calculating) Strand

Australian Curriculum v9.0 — AC9M5N08

Name: _____ **Date:** _____

KEY CONCEPT: Rounding means finding the nearest multiple of 10, 100, or 1000. **Estimation** uses rounding to find an approximate answer quickly!

Rounding Rules (The "Rounding Hill"):



Section 1: Fluency - Rounding Large Numbers

Question 1: Round 4,567 to the nearest 10.

Answer: _____

Question 2: Round 4,567 to the nearest 100.

Answer: _____

Question 3: Round 12,890 to the nearest 100.

Answer: _____

Question 4: Round 12,890 to the nearest 1000.

Answer: _____

Question 5: Round 7,349 to the nearest 10.

Answer: _____

Question 6: Round 5,672 to the nearest 100.

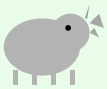
Answer: _____

Question 7: Round 48,234 to the nearest 1000.

Answer: _____

Question 8: Round $67.85 to the nearest whole dollar.

Answer: _____



Rounding Rhino Says:

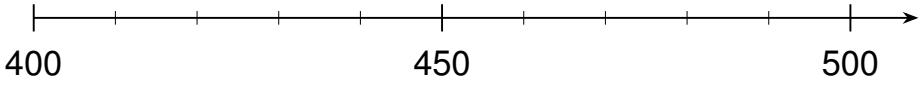
"You're a Rounding Rockstar!"

Joke Time: Why was the rounded number so happy? Because it was finally well-rounded!

Section 2: Reasoning - Number Lines

KEY CONCEPT: Number lines help us visualise which multiple a number is closest to!

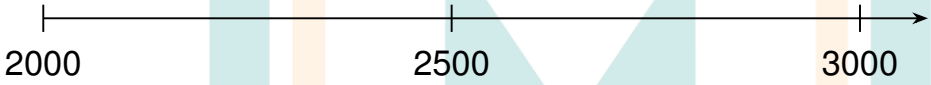
Question 9: Look at this number line:



Mark 435 on the number line. Which hundred is it closer to?

Answer: _____

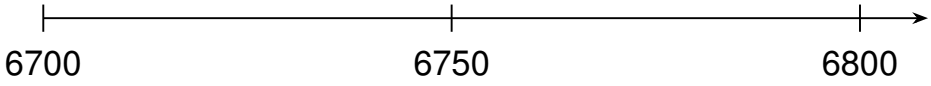
Question 10: Use the number line below:



Which thousand is 2,380 closer to?

Answer: _____

Question 11: Round 6,745 to the nearest 100. Show your thinking on this number line:



Answer: _____

Question 12: True or False: 8,459 rounds to 8,500 when rounded to the nearest 100.

Answer: _____

Question 13: Which of these numbers round to 3,000 when rounded to the nearest 1000?
Circle all correct answers: 2,389 — 2,501 — 3,499 — 3,501

Answer: _____

Question 14: Round 12.65 to the nearest whole number.

Answer: _____

Question 15: A shop sign says ”All items rounded to the nearest dollar.” An item costs $15.49. How much will you pay?

Answer: _____

Number Line Lizard Says:

“You’re a Visual Virtuoso!”

Joke Time: What do you call a number that’s always cold? A br-r-r-ound number!

Section 3: Challenge - Thinking Backwards

Question 16: I am a 3-digit number. When rounded to the nearest 100, I become 600. When rounded to the nearest 10, I become 550. What number could I be?

Answer: _____

Question 17: A number rounds to 4,000 when rounded to the nearest 1000. What is the smallest number it could be?

Answer: _____

Question 18: A number rounds to 4,000 when rounded to the nearest 1000. What is the largest number it could be?

Answer: _____

Question 19: I am a 4-digit number. When rounded to the nearest 100, I become 7,300. List three possible numbers I could be.

Answer: _____

Question 20: A price is rounded to $50. The original price ended in 5 cents. What could the original price have been? Give two possibilities.

Answer: _____

Question 21: When rounded to the nearest 10, a number becomes 340. When rounded to the nearest 100, it becomes 300. What numbers could it be?

Answer: _____

Question 22: A mystery number rounds to 8,600 to the nearest 100 AND to 9,000 to the nearest 1000. What is the smallest possible mystery number?

Answer: _____

Detective Dog Says:

"You're a Backwards Thinking Genius!"

Joke Time: Why did the number go to therapy?
It had too many issues with commitment to rounding!

Excellent work! Check your answers on the next page.

WORKSHEET 15
ANSWER KEY

Section 1: Fluency - Rounding Large Numbers

1. 4,570
2. 4,600
3. 12,900
4. 13,000
5. 7,350
6. 5,700
7. 48,000
8. $68

Section 2: Reasoning - Number Lines

9. 435 should be marked slightly past the midpoint. It is closer to 400.
(435 is 35 away from 400, but 65 away from 500)
10. 2,000 (2,380 is 380 away from 2,000 but 620 away from 3,000)
11. 6,700 (6,745 is closer to 6,700 than to 6,800)
12. True (8,459 rounds to 8,500)
13. 2,501 and 3,499 (Numbers from 2,500 to 3,499 round to 3,000)
14. 13
15. $15 (because $15.49 rounds down to $15)

Section 3: Challenge - Thinking Backwards

16. Possible answers: 545, 546, 547, 548, 549, 550, 551, 552, 553, 554
(Must round to 600 when rounded to nearest 100, and to 550 when rounded to nearest 10)
17. 3,500
18. 4,499
19. Possible answers include: 7,250, 7,251, 7,252... up to 7,349
(Any number from 7,250 to 7,349 rounds to 7,300)
20. Possible answers: $49.55, $49.65, $49.75, $49.85, $49.95, $50.05, $50.15, $50.25, $50.35, $50.45
(Any price ending in 5 cents that rounds to $50)
21. Numbers from 335 to 344
(Must round to 340 for nearest 10, and to 300 for nearest 100)

22. 8,600
(Must round to 8,600 to nearest 100, so between 8,550-8,649. Must round to 9,000 to nearest 1000, so at least 8,500. Smallest is 8,600)

Merit Tutoring

WORKSHEET 16

Estimating & Checking Reasonableness

Year 5 Mathematics — Operations (Calculating) Strand

Australian Curriculum v9.0 — AC9M5N08

Name: _____ **Date:** _____

KEY CONCEPT: Estimation helps us find approximate answers quickly and check if our exact calculations are reasonable. We round numbers first, then calculate!

Estimation Strategy (Using Thought Clouds):

Problem: $387 + 524$

$387 \approx 400$

$524 \approx 500$

Estimate:
$400 + 500 = 900$

Section 1: Fluency - Estimating Answers

Question 1: Estimate the answer to

$$452 + 391$$

by rounding each number to the nearest 100.

Answer: _____

Question 2: Estimate the answer to

$$789 - 234$$

by rounding to the nearest 100.

Answer: _____

Question 3: Estimate the cost of 4 items priced at $19.95 each by rounding to the nearest dollar.

Answer: _____

Question 4: Estimate

$$6{,}789 + 2{,}134$$

by rounding to the nearest 1000.

Answer: _____

Question 5: Estimate

$$5{,}432 - 1{,}876$$

by rounding to the nearest 1000.

Answer: _____

Question 6: Estimate the total: $12.85 + $27.40 + $8.95 (round to nearest dollar).

Answer: _____

Question 7: Estimate

$$348 \times 3$$

by rounding 348 to the nearest 100.

Answer: _____

Question 8: Estimate the cost of 6 books at $8.75 each (round to nearest dollar).

Answer: _____

Estimation Elephant Says:

"You're an Estimation Expert!"

Joke Time: Why don't elephants need calculators? Because they never forget their estimates!

Section 2: Reasoning - Checking Reasonableness

KEY CONCEPT: We use estimation to check if an answer "makes sense." If the exact answer is very different from our estimate, we probably made a mistake!

Question 9: Sam calculated

$$125 + 85 = 1{,}110$$

. Use estimation to explain why Sam's answer is not reasonable.

Answer: _____

Question 10: Lucy says

$$678 - 234 = 444$$

. Estimate to check if her answer is reasonable.

Answer: _____

Question 11: A calculator shows

$$4{,}567 + 3{,}289 = 7{,}756$$

. Is this reasonable? Use estimation to explain.

Answer: _____

Question 12: James bought 3 books for $15.95 each. He calculated the total as $489.50. Is this reasonable?

Answer: _____

Question 13: A shop receipt shows: 2 items at $24.50 each = $49.00. Use estimation to check this is correct.

Answer: _____

Question 14: Emma calculated

$$812 - 398 = 514$$

. Round to the nearest 100 to check if this is reasonable.

Answer: _____

Question 15: A student says ”

$$5{,}678 + 2{,}134 = 77{,}812$$

.” Without calculating exactly, explain why this must be wrong.

Answer: _____

Checker Cheetah Says:

"You're a Reasonableness Champion!"

Joke Time: Why did the number go to the doctor?
To get a check-up on its reasonableness!

Section 3: Challenge - Real-World Budgeting

Question 16: You have $50. You want to buy:

- A game for $22.50
- A snack for $4.95
- A book for $18.20

Estimate the total cost by rounding to the nearest dollar. Do you have enough money?

Answer: _____

Question 17: A family is shopping. They have $100. They want:

- Groceries: $47.85
- Petrol: $38.50
- Magazine: $6.95

Estimate if they have enough money.

Answer: _____

Question 18: A school needs to buy 8 basketballs at $24.75 each. They have a budget of $200. Estimate if they have enough.

Answer: _____

Question 19: You want to buy 3 toys priced at $16.95, $23.50, and $11.85. You have $50. Estimate the total and determine if you can afford all three items.

Answer: _____

Question 20: A charity raises $4,876 in one event and $3,234 in another. They need $8,000 total. Use estimation to determine if they've reached their goal.

Answer: _____

Question 21: Movie tickets cost $13.50 for adults and $8.75 for children. Estimate the cost for 2 adults and 3 children by rounding to the nearest dollar.

Answer: _____

Question 22: A baker sells cupcakes for $3.85 each. He sells 47 cupcakes. Estimate his total earnings.

Answer: _____

Question 23: A store has a sale: "Everything rounded to the nearest $5." An item normally costs $37. How much will you pay in the sale?

Answer: _____

Budget Bird Says:

“You’re a Financial Forecasting Star!”

Joke Time: Why did the budget go to school?
To improve its figures!

Amazing work! Check your answers on the next page.

WORKSHEET 16
ANSWER KEY

Section 1: Fluency - Estimating Answers

1. Estimate: 900
Working:

$$452 \approx 500$$

,

$$391 \approx 400$$

, so

$$500 + 400 = 900$$

2. Estimate: 600
Working:

$$789 \approx 800$$

,

$$234 \approx 200$$

, so

$$800 - 200 = 600$$

3. Estimate: $80
Working:

$$\$19.95 \approx \$20$$

, so

$$4 \times \$20 = \$80$$

4. Estimate: 9,000
Working:

$$6{,}789 \approx 7{,}000$$

,

$$2{,}134 \approx 2{,}000$$

, so

$$7{,}000 + 2{,}000 = 9{,}000$$

5. Estimate: 3,000 or 4,000
Working:

$$5{,}432 \approx 5{,}000$$

,

$$1{,}876 \approx 2{,}000$$

, so

$$5{,}000 - 2{,}000 = 3{,}000$$

6. Estimate: $49
Working:

$$\$13 + \$27 + \$9 = \$49$$

7. Estimate: 900
Working:

$$348 \approx 300$$

, so

$$300 \times 3 = 900$$

8. Estimate: $54
Working:

$$\$8.75 \approx \$9$$

, so

$$6 \times \$9 = \$54$$

Section 2: Reasoning - Checking Reasonableness

9. Not reasonable.

$$125 \approx 100$$

,

$$85 \approx 100$$

, so

$$100 + 100 = 200$$

. Sam's answer of 1,110 is way too large. The correct answer is 210.
10. Reasonable.

$$678 \approx 700$$

,

$$234 \approx 200$$

, so

$$700 - 200 = 500$$

. Lucy's answer of 444 is close to 500, so it's reasonable.
11. Not reasonable.

$$4{,}567 \approx 5{,}000$$

,

$$3{,}289 \approx 3{,}000$$

, so

$$5{,}000 + 3{,}000 = 8{,}000$$

. The answer should be closer to 8,000. (Actual: 7,856, so 7,756 is wrong)

12. Not reasonable.

$$\$15.95 \approx \$16$$

, so

$$3 \times \$16 = \$48$$

. James' answer of $489.50 is way too large (he likely multiplied incorrectly).

13. Reasonable.

$$\$24.50 \approx \$25$$

, so

$$2 \times \$25 = \$50$$

. The receipt total of $49.00 is very close, so it's correct.

14. Reasonable.

$$812 \approx 800$$

,

$$398 \approx 400$$

, so

$$800 - 400 = 400$$

. Emma's answer of 514 is close to 400, so it's reasonable. (Actual answer: 414)

15. Not reasonable.

$$5{,}678 \approx 6{,}000$$

,

$$2{,}134 \approx 2{,}000$$

, so

$$6{,}000 + 2{,}000 = 8{,}000$$

. The answer should be around 8,000, not 77,812 (which is 10 times too large).

Section 3: Challenge - Real-World Budgeting

16. Estimate: $46. Yes, you have enough money.
Working:

$$\$23 + \$5 + \$18 = \$46$$

. Since $46 ¡ $50, yes.

17. Estimate: $94. Yes, they have enough.
Working:

$$\$48 + \$39 + \$7 = \$94$$

. Since $94 ¡ $100, yes (just barely).
18. Estimate: $200. Yes, just enough.
Working:

$$\$24.75 \approx \$25$$

, so

$$8 \times \$25 = \$200$$

. (Actual: $198, so yes)
19. Estimate: $52. No, not quite enough.
Working:

$$\$17 + \$24 + \$12 = \$53$$

. Since $53 ¿ $50, probably not. (Actual: $52.30, so you're $2.30 short)
20. Estimate: Yes, they've reached their goal.
Working:

$$\$4{,}876 \approx \$5{,}000$$

,

$$\$3{,}234 \approx \$3{,}000$$

, so

$$\$5{,}000 + \$3{,}000 = \$8{,}000$$

. (Actual: $8,110)
21. Estimate: $54-$55
Working:

$$\$14 \times 2 = \$28$$

(adults),

$$\$9 \times 3 = \$27$$

(children),

$$\$28 + \$27 = \$55$$

22. Estimate: $200
Working:

$$\$3.85 \approx \$4$$

,

$$47 \approx 50$$

, so

$$\$4 \times 50 = \$200$$

23. $35
Working: $37 is closer to $35 than to $40 when rounding to the nearest $5.

Magnificent Work!

You've mastered Estimation & Rounding!
You can now check if answers make sense!