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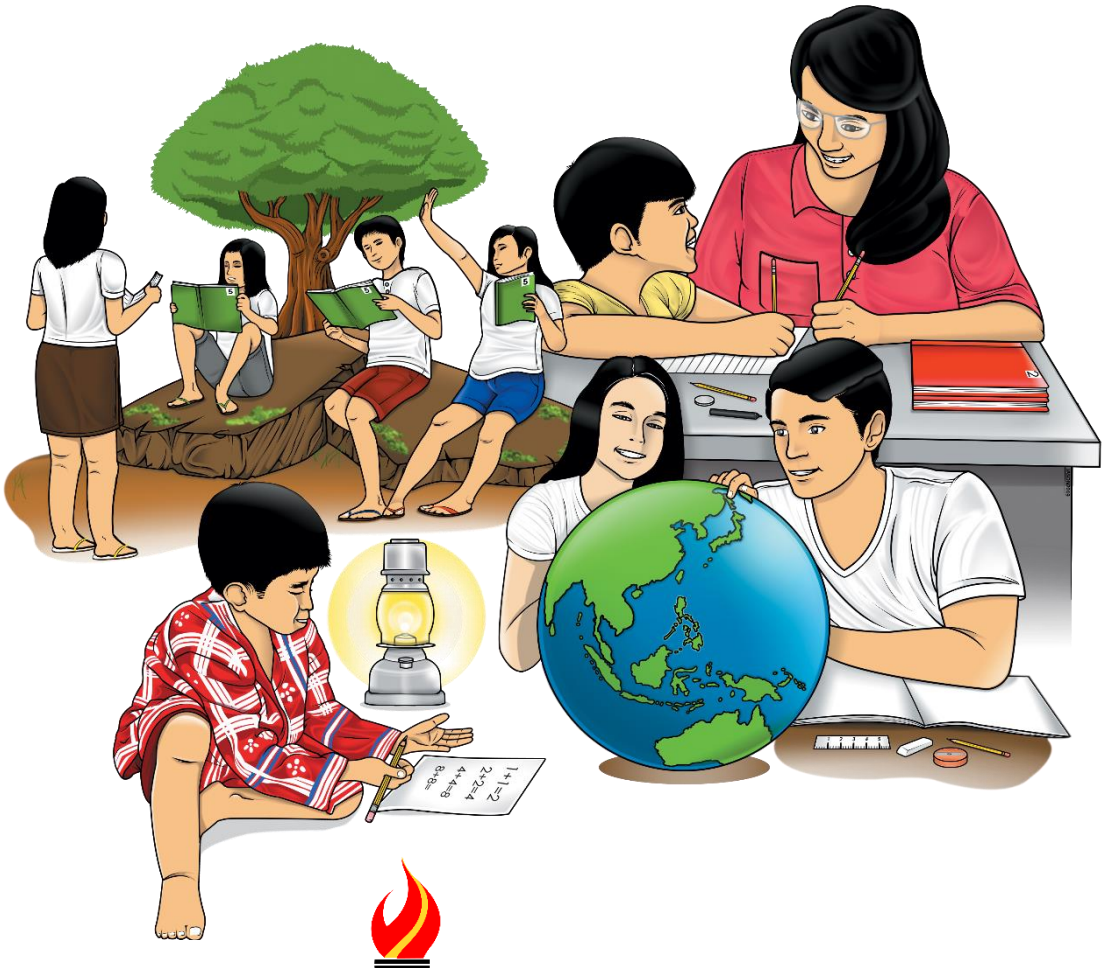
Mathematics

Quarter 1 – Module 6:
Estimating Products



ALTERNATIVE DELIVERY MODE
ADM

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Mathematics – Grade 4
Alternative Delivery Mode
Quarter 1 – Module 6: Estimating Products
First Edition, 2020

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Mathematics

Quarter 1 – Module 6:
Estimating Products

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Introductory Message

For the facilitator:

Welcome to the Mathematics 4 Alternative Delivery Mode (ADM) Module on Estimating Products!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator, you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to the Mathematics 4 Alternative Delivery Mode (ADM) Module on Estimating Products!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:

What I Need to Know	This will give you an idea of the skills or competencies you are expected to learn in the module.
What I Know	This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.
What's In	This is a brief drill or review to help you link the current lesson with the previous one.
What's New	In this portion, the new lesson will be introduced to you in various ways; a story, a song, a poem, a problem opener, an activity or a situation.
What is It	This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.
What's More	This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.
What I Have Learned	This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson.
What I Can Do	This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.
Assessment	This is a task which aims to evaluate your level of mastery in achieving the learning competency.
Additional Activities	In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned.
Answer Key	This contains answers to all activities in the module.

At the end of this module you will also find:

References	This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

What I Need to Know

When we multiply numbers, we usually find for the exact product or an exact answer to a multiplication problem. What if, we want to get an answer that is close enough but not the exact one? In this case, estimating products comes in.

After going through this module, you are expected to:

1. estimate the products of 3- to 4- digit numbers by 2- to 3- digit numbers with reasonable results.

What I Know

Estimate the products of the following.

1. 435 x 43	2. 643 x 65	3. 278 x 32	4. 534 x 51	5. 746 x 67
6. 2 453 x 46	7. 6 376 x 65	8. 4 235 x 82	9. 5 813 x 234	10. 3 487 x 354

Are you done answering?
If yes, time to check. Please go to page 10 for the ***Answer Key***.

What's In

Before we proceed with our new lesson, let's have a review on rounding off numbers and multiplying numbers with zeroes.

A. Round the following numbers to the indicated/underlined place value.

1. 47 2. 63 3. 437 4. 582 5. 7 615

B. Give the product.

1.	2.	3.	4.	5.
500	400	600	3 000	2 000
x 20	x 50	x 40	x 200	x 600

Examples of rounding off numbers:

- Let's have 734, round off to the nearest hundreds.

  784
  Digit to be rounded
  Since the next digit to its right is more than 5, then round up by adding 1 to 7.

  The answer is 800.

- Round off 3 298 to the nearest thousands.

  3 298
  Digit to be rounded
  Since the next digit to its right is less than 5, then round down by retaining the digit 3.

  The answer is 3 000.

- Don't forget to replace the remaining digits to its right with zeroes.

In multiplying numbers with zeroes, we can simply use the short method.

Example:
8 000
x 500
4 000 000

- Multiply the nonzero digit in the multiplier with the multiplicand.
  8 x 5 = 40
- Then add zeroes in the product equal to the number of zeroes in the factors.
  8**000** – has 3 zeroes
  5**00** - has 2 zeroes

  Since there are 5 zeroes in the factors, we simply attach the 5 zeroes to the product of the nonzero digits which is 40 and the resulting product is **4 000 000.**

Other examples:

1 200	2 000	3 400
x 40	x 100	x 300
12 x 4 = 48	**2 x 1 = 2**	**34 x 3 = 102**
3 zeroes	**5 zeroes**	**4 zeroes**
= 48 000	**= 200 000**	**= 1 020 000**

Notes to the Teacher

Supplemental lessons and activity sheets on the review topics should be given to learners who lack the required prerequisite skills.

What's New

Let's start our new lesson with a story problem.

Please read and analyze the problem carefully.

Mang Antonio owns a mango orchard in their province. This harvest season, he was able to get 571 mangoes from a tree. If he has 32 mango trees, about how many mangoes can he harvest this season?

How many mangoes was he able to harvest from one tree?

How many mango trees does he have?

What is asked in the problem?

What phrase in the problem indicates that an estimated product is being asked for?

How can we find the estimated number of mangoes harvested?

What is It

Let us study how to estimate the product.

The phrase *"about how many"* does not ask for an actual answer but an estimate. The required answer can be solved by estimating the product.

Study the solution below.

The given numbers are 571 mangoes and 32 mango trees.

Step 1

- Round each factor to its greatest place value.

571 → 600
x 32 → x 30
} Rounded factors

Step 2

- Multiply the rounded factors

600
x 30
18 000
Estimated product

Hence, there are about **18 000** mangoes that can be harvested this season.

- Take note that the number of zeroes in the rounded factors should be attached to the product of the non-zero digits. The *factors* are the numbers being multiplied to get the product.

To check if the estimated product is reasonable, we have to find the actual product and compare it with the estimated product.

571
x 32
1 142 → 571 x 2
+ 17 13 → 571 x 30
18 272 → **actual product**
18 000 → **estimated product**

Notice that the estimated product is close to the actual product.

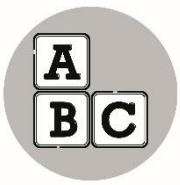
Other examples:

Let us estimate the product of the following multiplication expressions.

1. 454 → 500
x 36 → x 40
20 000

2. 7 247 → 7 000
x 461 → x 500
3 500 000

Estimated Products



What's More

Find the estimated product by rounding each factor to its highest place value.

1. 157 x 32

____ x ____ = _____

2. 431 x 24

____ x ____ = _____

3. 2 154 x 62

_____ x ____ = _____

4. 3 732 x 261

_____ x ____ = _____

5. 5 434 x 343

_____ x ____ = _____

Are you done answering?
If yes, time to check. Please go to page 10 for the ***Answer Key***.

What I Have Learned

How do we estimate the product of 3- to 4- digit numbers by 2- to 3-digit numbers?

- To estimate the product, round each factor to its greatest place value, and then multiply the rounded factors.

What I Can Do

Estimate each product. Then, compare the two estimated products. Write the correct symbol **>**, **<** or **=** in the box.

1. 174 x 47	☐	246 x 38
2. 198 x 52	☐	624 x 23
3. 343 x 364	☐	421 x 327
4. 4 324 x 23	☐	3 764 x 26
5. 5 435 x 213	☐	5 645 x 197

Are you done answering?
If yes, time to check. Please go to page 10 for the ***Answer Key***.

Assessment

A. Which is the most reasonable estimated product in the options given? Choose the letter of the correct answer.

1. 105 x 46

   a. 500 b. 5 000 c. 6 000 d. 6 500

2. 218 x 62

   a. 13 000 b. 12 500 c. 12 000 d. 11 000

3. 327 x 192

   a. 60 500 b. 60 000 c. 50 500 d. 50 000

4. 268 x 432

   a. 120 000 b. 120 500 c. 130 000 d. 130 500

5. 2 627 x 154

   a. 500 500 b. 600 000 c. 605 000 d. 700 000

B. Estimate the products.

6. 385 x 29

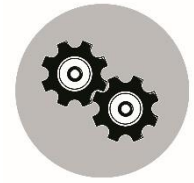
7. 567 x 35

8. 654 x 211

9. 3 267 x 62

10. 3 626 x 278

Are you done answering?
If yes, time to check. Please go to page 10 for the ***Answer Key***.



Additional Activities

Read and solve.

1. Karen jogs 1 675 meters a day. About how many meters does she jog in 56 days?
2. Mang Oscar harvested 102 sacks of palay in one hectare. About how many sacks of palay was he able to harvest in his 11-hectare rice field?
3. In one public school, there are 394 classes from grades 1 to 6. Each class contains 48 pupils. About how many pupils are there in the school?

Are you done answering?
If yes, time to check. Please go to page 10 for the ***Answer Key***.

Answer Key

What's In ***(page 2)***

A. 1. 50
2. 60
3. 400
4. 600
5. 8 000

B.
6. 10 000
7. 20 000
8. 24 000
9. 600 000
10. 1 200 000

What I Know ***(page 1)***

1. 16 000
2. 42 000
3. 9 000
4. 25 000
5. 49 000
6. 100 000
7. 420 000
8. 320 000
9. 1 200 000
10. 1 200 000

What's More ***(page 6)***

1. 200 x 30 = 6 000
2. 400 x 20 = 8 000
3. 2 000 x 60 = 120 000
4. 4 000 x 300 = 1 200 000
5. 5 000 x 300 = 1 500 000

What I Can Do
(page 7)

1. >
2. <
3. =
4. <
5. <

Assessment ***(pages 7 and 8)***

1. B
2. C
3. B
4. A
5. B
6. 12 000
7. 24 000
8. 140 000
9. 180 000
10. 1 200 000

Additional Activities
(pages 8 and 9)

1. 120 000 meters
2. 1 000 sacks of palay
3. 20 000 pupils

References

K to 12 Mathematics Curriculum Guide, August 2016.

Tabilang, Alma R. et. Al, 2015, Mathematics 4 Teacher's Guide pp. 44-47, Department of Education.

Tabilang, Alma R. et. Al, 2015, Mathematics 4 Learner's Material

pp. 33-35, Department of Education.

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