Objectives:
- Students will learn tricks for making the multiplication of integers easier, as demonstrated by their completion of a class worksheet where they do so.
- Students will memorize the multiplication table, as evidenced by them passing "minute quizzes."

Student Materials on Desk Corner:
- Multiplying Integers Homework #3
- Homework Checker
- Readiness Checker

Student Materials for Later:
- Homework Log
- Binder Paper
- Pencils

Teacher Materials:
- "New Classroom Format Letter"
- "Minute Quiz 10A"
- "Multiplying Integers Homework #3" answer key and grading roster for TA
- "Group Roles" transparency
- "Multiplying Integers Homework #4" handout

Homework:
- Multiplying Integers Homework #4
- Comprehensive Test Next Friday 10/3

Time	Activity
Before Bell	**DO NOW** As students enter the classroom, shake hands and give them a copy of the "**New Classroom Format Letter**" to read. Also, remind them that there is a minute quiz and they need to be seated quietly with a pencil when the bell rings. Write the following "Do Now" on the board: • Read the letter I handed out. • Take out a pencil and *quietly* wait for the minute quiz.
5 min	**MINUTE QUIZ** When the bell rings, quickly go around and put the **minute quiz** on each student's desk, facedown. Then, start the quiz and give everyone one minute. While students are working on the quiz, instruct the TA go around and collect **homework** and stamp **homework checkers**. Then, quickly stamp the **readiness checkers** of students who were ready when the bell rang and had their readiness checkers out.
15 min	**NEW CLASSROOM FORMAT** Read the "New Classroom Format Letter" to the class, which students have already had a chance to look over. Explain your desire to modify your teaching style so that students will have more opportunities to work together. Also stress the difference between group work time and individual quiet work time, and explain the "**Individual or Group Talking Time Poster**." Explain the **group roles**, the **tick system**, and **quiet coyote**. Also, explain the new **gum chewing** and **illegal backpack parking** consequences.
1 min	**STRETCH BREAK** Before transitioning to the lecture, lead the students through some exercises to refresh them.
33 min	**LESSON: MULTIPLICATION TRICKS** **Notes** Follow the handwritten Cornell Notes. Pass out the classwork sheet, too, and have students work on groups on it. While they do that, take attendance. **Homework** Pass out the "Multiplying Integers Homework #4" handout and have students write down the

	assignment on their homework logs. Also remind students that there will be a minute quiz again the next time we meet on the new homework assignment (multiplying 10's, 11's, and 12's). Finally, let them know that there will be a comprehensive test on everything we've learned so far at the end of next week, which is also the end of the grading period.
1 min	**STRETCH BREAK** Before transitioning to ALEKS, lead the students through some exercises to refresh them.
25 min	**ALEKS** Students should continue with **ALEKS**. Use this student work time to **return graded homework**.

Numeracy
Minute Quiz 1-10A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

8 • 9 =	3 • 8 =	3 • 9 =
5 • 7 =	2 • 9 =	1 • 8 =
1 • 8 =	11 • 9 =	11 • 8 =
6 • 8 =	4 • 7 =	3 • 8 =

Numeracy
Minute Quiz 1-10A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

8 • 9 =	3 • 8 =	3 • 9 =
5 • 7 =	2 • 9 =	1 • 8 =
1 • 8 =	11 • 9 =	11 • 8 =
6 • 8 =	4 • 7 =	3 • 8 =

Numeracy
Minute Quiz 1-10A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

8 • 9 =	3 • 8 =	3 • 9 =
5 • 7 =	2 • 9 =	1 • 8 =
1 • 8 =	11 • 9 =	11 • 8 =
6 • 8 =	4 • 7 =	3 • 8 =

Numeracy
Minute Quiz 1-10B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

11 • 8 =	7 • 7 =	1 • 8 =
12 • 7 =	9 • 8 =	2 • 7 =
4 • 7 =	8 • 8 =	5 • 7 =
7 • 9 =	4 • 8 =	4 • 9 =

Numeracy
Minute Quiz 1-10B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

11 • 8 =	7 • 7 =	1 • 8 =
12 • 7 =	9 • 8 =	2 • 7 =
4 • 7 =	8 • 8 =	5 • 7 =
7 • 9 =	4 • 8 =	4 • 9 =

Numeracy
Minute Quiz 1-10B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

11 • 8 =	7 • 7 =	1 • 8 =
12 • 7 =	9 • 8 =	2 • 7 =
4 • 7 =	8 • 8 =	5 • 7 =
7 • 9 =	4 • 8 =	4 • 9 =

Numeracy
Minute Quiz 1-10C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

12 • 9 =	12 • 8 =	7 • 9 =
8 • 8 =	7 • 9 =	12 • 9 =
1 • 8 =	1 • 8 =	11 • 7 =
4 • 7 =	11 • 8 =	8 • 9 =

Numeracy
Minute Quiz 1-10C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

12 • 9 =	12 • 8 =	7 • 9 =
8 • 8 =	7 • 9 =	12 • 9 =
1 • 8 =	1 • 8 =	11 • 7 =
4 • 7 =	11 • 8 =	8 • 9 =

Numeracy
Minute Quiz 1-10C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

12 • 9 =	12 • 8 =	7 • 9 =
8 • 8 =	7 • 9 =	12 • 9 =
1 • 8 =	1 • 8 =	11 • 7 =
4 • 7 =	11 • 8 =	8 • 9 =

November 22, 2008

Dear Students,

I'm very proud of how much all of you have learned about being respectful and attentive students. Many of you started at DCP with problems shouting out, and now you are doing a much better job with raising your hand and waiting to be called on. You have learned many valuable student skills that are needed for college, such as note taking, writing down your homework assignments, and seeing me in office hours for additional help. So, I thank each of you for the amazing effort you've put into learning and making our class a respectful place.

Although class has been going well, I was doing some thinking over the weekend, and I've decided that the way class currently runs isn't the best for me or for you. That is, most of the time, class consists of me doing lots of talking and you doing lots of quiet listening. The problem with this is that it makes it difficult for me to loosen up. I find myself very serious in the classroom because I must enforce silence the whole period because the activities we do demand silence. This current structure is bad for you because there are so many things that you can learn from each other, and I'm not currently letting you take advantage of that. In addition, even though each of you are capable of sitting quietly the whole period, I don't want to make you do that every day. Yes, there are times for quiet listening (such as tests, quizzes, or when I am speaking), but I can make changes to my teaching so that you will have opportunities to interact with your classmates.

To help make class better, I've put everyone into teams of four or five. Each of these teams has a name, such as Alpha or Omega, and you will be able to work with each other in these groups at various points in class as long as you stay on-task and do not disrupt other groups. To help make these group times productive, each student will be assigned a role in the group. The roles are Team Captain, Facilitator, Materials Manager, and Recorder/Reporter, and your role will change every day. I will explain these roles later in class today. To help students stay on-task in their groups, I will be using the Tick System to award positive ticks for groups who are on-task and negative ticks for groups with any members who are off-task. With these systems, you and your group will be responsible for each other's success.

In conclusion, you have all done a great job learning to be respectful and quiet. There will still be many times when quiet listening is necessary, but I am making efforts to adjust my teaching so that you will have time to interact with and learn from your classmates. As always, let me know if you have any suggestions about how I can be a better teacher or how I can support you to continue to grow as students. I look forward to how much we will learn this year.

Sincerely,

Mr. Wong

Group Roles

Team Captain

- Ensures respect, teamwork, cooperation, and participation among all members.
- Ensures that all members are on-task.
- Assigns responsibilities when appropriate.

Facilitator

- Is the only person that can ask the teacher a question during group work.
- Ensures that members communicate their needs with each other.
- Helps the Team Captain ensure that all communication is on-task.
- Ensures that members are quiet and attentive when asked by the teacher.

Materials Manager

- Is the only person that can be out of his or her seat during group work.
- Gets and returns materials.
- Ensures that materials are used properly.

Recorder/Reporter

- Takes notes for the group when appropriate.
- Restates and writes the group's conclusions.
- Shares the group's conclusions with the rest of the class.

Team Captain

- Ensures respect, teamwork, cooperation, and participation among all members.
- Ensures that all members are on-task.
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- Restates and writes the group's conclusions.
- Shares the group's conclusions with the rest of the class.

Tick S

On-Task

If *everyone* in a group is on-task
get a +tick. So, make sure you'r
be on-ta

ystem

x = +Tick

, then *everyone* in the group can
re on-task, and remind others to
ısk, too!

+Tick = +0.

For each +tick you get, you ga
assignment. So, if you have fiv
homework assignment that y

Off-Task

.5% on HW

in 0.5% on the next homework
ve +ticks, you'll get 102.5% on a
you'd otherwise get 100% on.

x = -Tick

If *anyone* in a group is off-task
topic, then *everyone* in the grou
each other and make su

-Tick = -0.

For each -tick you get, you los
assignment. So, if you have fi
homework assignment that y

, or is talking about an off-task
p gets a -tick. So, watch out for
ure everyone is on-task!

5% on HW

se 0.5% on the next homework
ve -ticks, you'll get 97.5% on a
you'd otherwise get 100% on.

Quiet Coyote

Mouth Closed, Attentive Ears

Lesson 10
Numeracy

Tom Wong
9/22/08 Per. 3
Mr. Wong

Multiplication Tricks

Section → **Multiplying by 9, 99, or 999**

Multiplying by 9 is really multiplying by (10-1).

Ex: $46 \cdot 9 = 46 \cdot (10-1) = 46 \cdot 10 - 46 = 460 - 46 = 414$

Ex: $68 \cdot 9 = 68(10-1) = 680 - 68 = 612$

Multiplying by 99 is really multiplying by (100-1).

Ex: $46 \cdot 99 = 46(100-1) = 4600 - 46 = 4554$

Multiplying by 999 is really multiplying by (1000-1).

Ex: $38 \cdot 999 = 38 \cdot (1000-1) = 38000 - 38 = 37962$.

See CW Part 1.

Section → **Multiplying Numbers that Differ by 2**

When two numbers differ by 2, their product is equal to the square of the number between them minus 1.

Ex: $11 \cdot 13 = 12^2 - 1 = 144 - 1 = 143$

See CW Part 2, 3.

Numeracy | Name:
Classwork 1-10 – Multiplication Tricks | Date: | Period:

Part 1: Multiplying by 9, 99, or 999.
Evaluate the following multiplication problems using the trick that multiplying by 9 is the same as multiplying by (10 – 1), multiplying by 99 is the same as multiplying by (100 – 1), and multiplying by 999 is the same as multiplying by (1000 – 1).

1) 72 • 9

2) 26 • 9

3) 47 • 9

4) 28 • 99

5) 32 • 99

6) 63 • 99

7) 87 • 999

8) 37 • 999

9) 68 • 999

10) Challenge Question: Evaluate 56 • 998 using the trick that multiplying by 998 is the same as multiplying by (1000 – 2).

Part 2: Evaluate the following squares:

11) 1^2

12) 2^2

13) 3^2

more on back

14) 4^2 15) 5^2 16) 6^2

17) 7^2 18) 8^2 19) 9^2

20) 10^2 21) 11^2 22) 12^2

23) 13^2 24) 14^2 25) 15^2

Part 3: Multiplying Integers that Differ by 2

Evaluate the following multiplication problems using the trick that when two numbers differ by two, their product is the square of the number in between them minus 1.

26) 4 • 6 27) 13 • 15 28) 14 • 16

29) 7 • 9 30) 2 • 4 31) 11 • 13

32) 9 • 11 33) 4 • 6 34) 12 • 14

35) 10 • 12 36) 8 • 10 37) 6 • 8

38) 5 • 7 39) 3 • 5 40) 1 • 3

Numeracy Name:
Multiplying Integers Homework #4 Date: Period:

Part 1: Evaluate the following multiplication problems. Some of them have been done for you. Use the back of this paper (or a separate sheet of paper) for scratch work.

1 • 10 =	1 • 11 =	1 • 12 =
2 • 10 =	2 • 11 =	2 • 12 =
3 • 10 =	3 • 11 =	3 • 12 =
4 • 10 =	4 • 11 =	4 • 12 =
5 • 10 =	5 • 11 =	5 • 12 =
6 • 10 =	6 • 11 =	6 • 12 =
7 • 10 =	7 • 11 =	7 • 12 =
8 • 10 =	8 • 11 =	8 • 12 =
9 • 10 =	9 • 11 =	9 • 12 =
10 • 10 =	10 • 11 =	10 • 12 =
11 • 10 =	11 • 11 =	11 • 12 =
12 • 10 =	12 • 11 =	12 • 12 =

Part 2: Using your answers from above and the fact that multiplication is commutative (for example, 2 • 3 = 3 • 2), fill in the following multiplication table:

•	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1	1	2	3	4	5	6	7	8	9			
2	2	4	6	8	10	12	14	16	18			
3	3	6	9	12	15	18	21	24	27			
4	4	8	12	16	18	24	28	32	36			
5	5	10	15	18	25	30	35	40	45			
6	6	12	18	24	30	36	42	48	54			
7	7	14	21	28	35	42	49	56	64			
8	8	16	24	32	40	48	56	64	72			
9	9	18	27	36	45	54	70	72	81			
10												
11												
12												