Exploring Multiples – A Co-Teaching Lesson Plan

Co-Teaching Approaches
A "(Y)" in front of the following list items indicates the approach is outlined in the lesson. An "(N)" in front of the following list items indicates the approach is not outlined in the lesson.

- (Y) Parallel Teaching
- (Y) Team Teaching
- (N) Station Teaching
- (N) One Teach/One Observe
- (N) Alternative Teaching
- (Y) One Teach/One Assist

Subject
Grade 3 Mathematics

Strand
Patterns, Functions, and Algebra

Topic
Exploring multiples

SOL
3.16   The student will identify, describe, create, and extend patterns found in objects, pictures, number, and tables.
3.4   The student will
       a) represent multiplication and division through 10 × 10, using a variety of approaches and models.

Outcomes
Skip counting can furnish practice with multiples while deepening students' understanding of multiplication facts. Students will be able to observe visual patterns resulting from identifying the multiples of a number.

Materials
- Hundreds chart (attached)
- Linking cubes divided into bags
- Multiplication Table (attached)
- Recording Sheet (attached)
- Framing sheet (sample attached)

- Homework sheet and matching activity will be provided after the lesson
- interactive board

Vocabulary
multiples, pattern, skip counti

Co-Teacher Actions

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
Anticipatory Set	Team Teaching	Distribute the Hundreds Chart, bags of linking cubes, and blank framing sheets. (1) Tell the class that sometimes when you have difficulty remembering a multiplication fact, being able to skip count through a number pattern might help. Today, we are going to explore some number patterns and use it to remember multiplication facts. (4) Have students describe the pattern they see when skip counting by twos. Elicit from students that this is a growing pattern whose rule is plus two. Call on students to tell which numbers they covered on the chart. Relate the resulting numbers on the chart with multiplication facts of two by thinking aloud, "Two skips of two are the same as 2 x 2 = 4." Have students share this idea with a partner by reciting a multiplication fact for each of the marked squares. Remind students that multiplication can be thought of as repeated addition. Add this to the framing sheet. Have students add this to their frames.	(2) Explain to students that they will be exploring patterns through skip counting on a hundreds chart. A sample hundreds chart will be on the interactive board to show students what to do. (3) Beginning with the number 2, model how to skip count by twos with linking cubes on the hundreds chart. Assist students as necessary to keep the skip-two counting pattern. Assist students in adding this information to their frame.
Lesson Activities/ Procedures	One Teach/One Assist	(1) Demonstrate how students will connect the skip-counting patterns to the	(1) When the students are working together discussing skip counting/multiples, the SE

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		Recording Sheet. Do this by completing the 1x row and column while students fill in their charts. (2) Next, have students repeat the skip counting by twos and complete the 2x row and column. GE will monitor student progress and assist as necessary. Clarify instructions for completing the chart if needed.	will walk around and jot down the names of student who are having difficulty with the concept to work with later in the lesson. (2) Assist with students who are having difficulty with the concept. Work with the group and check for understanding.
Guided/ Independent Practice	Parallel Teaching	Break students into partners/groups to practice creating other skip counting patterns, showing multiples. Direct students to clear their linking cubes each time they begin a new pattern sequence. They should complete patterns for numbers up to 10. (If there are time constraints, complete two, five, and 10.) Students who were having difficulty during the group work will work with the SE. The remainder of the students will work in small groups while the GE checks for understanding.	The SE will work with the students who were having difficulty during the group work. For struggling students, model how to skip count on the number line. If the students have an understanding, let them practice with a partner. Students still having difficulty can continue to work with the teacher.
Closure	Team Teaching	Discuss with the groups the skip counting/multiples they had come up with during group work.	SE will team teach and will add the discussion to the frame.
Formative Assessment Strategies	Team Teaching	Exit Ticket: Fill in the missing numbers in these patterns:	The same assessment will be given to all students.

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		2, 4, ___, 8, ___, 12, 14, 16, ___, 20 5, 10, 15, ___, ___. 30	
Homework	Team Teaching	Give student a blank hundreds chart. Give students a multiple to work on based on ability level.	Same as GE.

Specially Designed Instruction

- The SIM framing routine will be used as part of this lesson (attached). The frame will be modeled by the teacher and completed together as a class. This will help students organize information learned about skip counting/multiples. The teacher can provide a copy of the frame to students who are unable to copy or to give them a legible document.
- .The teacher can provide time for additional independent practice until student can skip count fluently.

Accommodations

- Students who have difficulty with higher skip counting/multiples may use lower numbers as long as they are grasping the concept.
- Students will work in a teacher-led small group if they struggle with the operations or basic facts in general.
- A teacher can write the work for the student, or allow for oral responses, for students who need numbers lined up, have difficulty writing, and/or who verbalize responses more efficiently than writing them down.
- Use mathematics aids to assist students with students who have difficulty with basic facts.
- Working in small groups will allow one teacher to work with students who can complete fewer problems, need extended time, and/or need answers written.
- For students who take extended periods of time completing assignments due to off-task behaviors or students who process material at a slower pace, have students focus on completing two or three numbers.

Modifications

- Only use twos, fives, and tens, as they can skip count by these numbers.

Notes

- "Special educator" as noted in this lesson plan might be an ELL teacher, speech pathologist, or other specialist co-teaching with a general educator.
- The co-teachers who developed this lesson plan received required professional development in the use of specialized instructional techniques which combine an explicit instructional routine with the co-construction of a visual device (graphic organizer). The *Framing Routine* used in conjunction with the "Frame" helps to develop understanding of information and procedures by associating their main ideas and details. These Content Enhancement Routines were developed at the Center for Research on Learning at the University of Kansas.   Link: http://www.kucrl.org/sim/brochures/CEoverview.pdf
- Other graphic organizers should be used by teachers who have not received professional development in the *Framing Routine*. If Virginia teachers would like to learn Content Enhancement Routines, contact your regional TTAC.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

The FRAME Routine

Key Topic: Exploring Multiples

is about...

using skip counting to explore multiples

Main idea	**Main idea**	**Main idea**
skip counting by 2's	skip counting by 3's	skip counting by 4's

Essential details	**Essential details**	**Essential details**
Will create multiples of 2	Will create multiples of 3	Will create multiples of 4
will be a multiplication fact	Will be a multiplication fact	will be a multiplication fact

$2 \times 1 = 2$ $2 \times 4 = 8$ $2 \times 7 = 14$ $2 \times 2 = 4$ $2 \times 5 = 10$ $2 \times 8 = 16$ $2 \times 3 = 6$ $2 \times 6 = 12$ $2 \times 10 = 20$	$3 \times 1 = 3$ $3 \times 4 = 12$ $3 \times 7 = 21$ $3 \times 2 = 6$ $3 \times 5 = 15$ $3 \times 8 = 24$ $3 \times 3 = 9$ $3 \times 6 = 18$ $3 \times 9 = 27$ $3 \times 10 = 30$	$4 \times 1 = 4$ $4 \times 4 = 16$ $4 \times 7 = 28$ $4 \times 2 = 8$ $4 \times 5 = 20$ $4 \times 8 = 32$ $4 \times 3 = 12$ $4 \times 6 = 24$ $4 \times 9 = 36$ $4 \times 10 = 40$

So What? (What's important to understand about this?)

skip counting and multiples are related

Multiplication Table

X	1	2	3	4	5	6	7	8	9
1									
2									
3									
4									
5									
6									
7									
8									
9									

Recording Sheet

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	64	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	64	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	64	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	64	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100