GCU College of Education

LESSON PLAN TEMPLATE (modified for MAT 150)

Section 1: Planning

Name:	**A good student.**
Date:	**August 13, 2020**
Lesson Topic: (approved list of topics can be found in your LC announcements)	**COUNTING AROUND THE CLASS** **In this lesson students will find patterns when counting by related numbers and explain the relationship of multiplication and division.**
Overview:	**The student can count by 3's to get to 30. (Number may differ for different students.)** **The student can explain the relationship of multiplication and division.** **The student can find patterns when counting by 3's and then counting by 6's. (Patterns may differ for different students)**
National/State Learning Standards:	**Multiply and divide within 100** NC.3.OA.7 Demonstrate fluency with multiplication and the relationship between multiplication and division with factors, quotients and divisors up to and including 10. ***Know from memory all products with factors up to and including 10*** ***Illustrate and explain using the relationship between multiplication and division*** ***Determine the unknown whole number in a multiplication or division equation relating three whole numbers.*** **Understand properties of multiplication and the relationship between multiplication and division** NC.3.OA.1 For products of whole numbers with two factors up to and including 10 *Interpret the factors as representing the number of equal groups and the number of objects in each group *Illustrate and explain strategies including arrays, repeated addition, decomposing a factor and applying the commutative and associative properties.

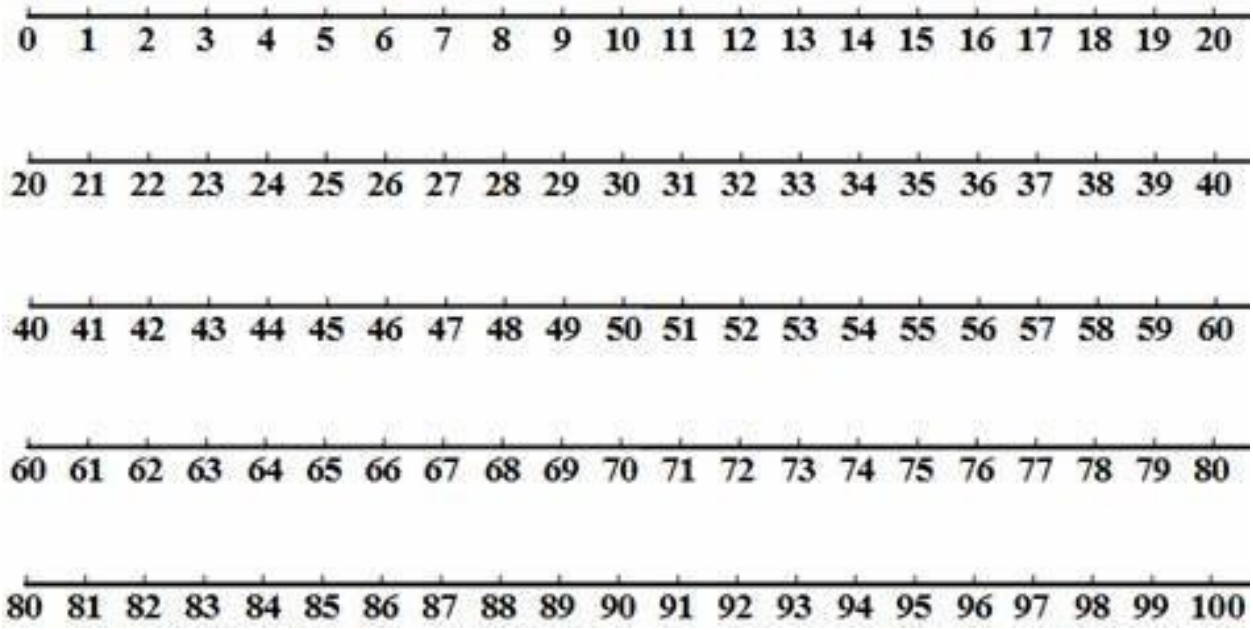
Objectives:	What multiples do individual students know Students are able to understand the relationship between the skip counting and multiplication Students are able to identify patterns found in multiples of numbers Students are able to see relationships between factors and multiples Students are able to see relationships when comparing multiples of given numbers
Materials:	None for basic activity of counting around the class. Chart paper Teacher may decide when to record multiples to make them visible to students or to extend activity to allow students to investigate the patterns created by multiple of a number. Teacher makes decision about what number or numbers students will count by Teacher makes decisions about where and how to record counting sequences Teacher plans questions to probe students thinking Teacher plans questions she may ask during this activity

Section 2: Instruction

Instructional lesson of Topic	**Time Needed**
Teacher will right the number sequence on the board so that the students can visually see the number. For students who struggle with this a little more with finding the sequence the teacher will give them a number line to visually see how many spaces the sequence is moving by. After the students have done this a few times, the teacher will prompt them to do it without the number line.	**5 minutes to explain**
Activity Instructions	**Time Needed**
Choose a number to count by. Students count around the class by single digit numbers to provide practice with multiplication and related division facts. Predict the target number Before the count starts, students try to estimate the ending number of the count (number the last person in the class will say) Refer to this number as the target Count around the class by the selected number. If students count by 3's, the first students say "3" the next student says "6", etc. Pause during the count. After students are familiar with this activity, begin pausing during the count and asking "How many people have counted so far? How do you know" Example: When counting around by 3'safter student says 24 the teacher asks "How many people have counted so far?" Students will have to think about the factor x 3 that will equal 24. Students begin to think about the relationship between a factor and it's multiple.	**20 minutes**

Extension: Teacher records the multiple on chart paper as they are stated aloud: 5,10,15 etc. Students look for patterns Count around the circle or the class as many times as needed to reach 100 or greater Next do the same for counting by 10. This time students say multiples of 10 Teacher again records the multiples of 10 as they are stated aloud Students compare and discuss patterns of the multiples of and multiples of 10 Teacher records multiples of 3 when students are counting around the class. Teacher also records multiples of 6 when students are counting around the class. Ask students to compare the multiples of 3 and 6. (students should notice that every other multiple of 3 is also a multiple of 6) What other numbers will have this same pattern? Students can find patterns in 3s, 6s and 9s and also can see pattern of doubling when comparing 2s and 4s, 3s and 6s, 4s and 8s, etc. Variations Students can count in a small group In small groups, students can take turns "pausing" during the count. Possible questions asked by a student: "How many multiples have we said so far?" "How do we know?"	
Assessment 1. Students will make sense of problems and persevere in solving them 2. Students reason abstractly and quantitatively 3. Students construct viable arguments and critique the reasoning of others 4. Students model with mathematics 5. Students attend to precision 6. Students look for and make use of structure 7. Students look for and express regularity in repeated reasoning	**Time Needed 5 minutes**

Number line worksheet for students to visualize



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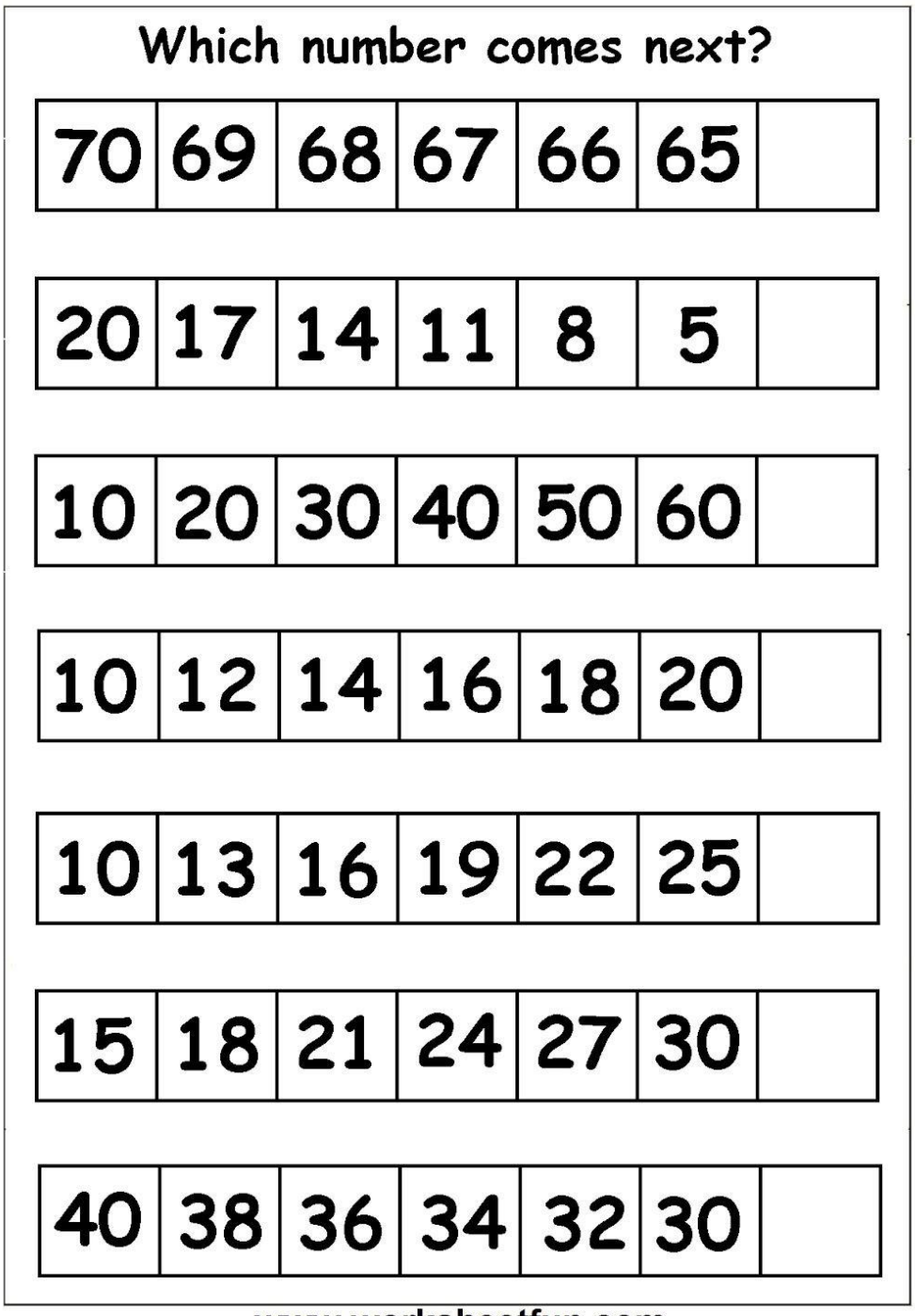

Worksheet above for children to work on in small groups

Resources

Mathematics Standards. (n.d.). Retrieved August 15, 2020, from http://www.corestandards.org/Math/