Grade Level	Content Area	Course Title *(9-12 Samples Only)*	Unit Title
1st	**Math**		**All About an Arizona Animal**

Length of Unit	Time of Year Taught	Expected Prior Knowledge
Two weeks	**2nd Quarter**	Beginning counting and pattern making

Unit Description

After two weeks of focus around this unit, students will have found connections through multiple subject areas. In math, pattern making, using representations, and considering basic formulas will fill the curriculum. A variety of activities, a focus on skills, the use of manipulatives, and making daily connections outside the classroom will enrich and engage all students. The teacher will use workshops, direct instruction, centers, and play to lead learning and excite students about math.

Strand(s), Concept(s), and PO(s) *List and define the required Strand(s), Concept(s), and PO(s) for each lesson included in this sample.*	**Strand 3:** Patterns, Algebra, and Functions **Concept 3:** Algebraic Representations: Represent and analyze mathematical situations and structures using algebraic representations **Performance Objective 1:** Record equivalent forms of whole numbers to 100 by constructing models and using numbers.
Summative Assessment *Describe a cumulative and comprehensive activity that allows students to demonstrate mastery of stated POs. A copy of the summative assessment must be included in the application package.*	Students will be asked to demonstrate their understanding of both the creation of repeating patterns as well as creating and solving simple addition problems.
Assessment Scoring *Explain how each assessment is scored, to include points per question, total points possible, criteria, and grading scale. Describe rubric, if applicable, to include components being evaluated and the scoring criteria for each. A copy of the answer key and/or scoring rubric must be included in the application package.*	For the pattern portion of the assessment, students should be scored on a standards-based recording scale on their ability to complete a repeating pattern. Students may create whatever type of pattern they would like (color, picture, symbol, etc.) as long as it repeats. For the addition problem portion of the assessment, students should be scored both on their ability to create/solve an addition problem as well as correctly represent the problem in pictorial form. If points are assigned to the two categories being assessed, the points should be equal so that each content topic holds the same weight.
Materials/Resources Needed *(Include all items for the entire unit.)*	• Picture cards/ Printed pictures of animals on index cards (at least 3 of each type of animal) • Writing paper for students • Non-fiction (expository) texts about animals for student use • Pre-field work research recording forms (see attached) • Field work recording forms (see attached) • Plastic animal figurines (or pictures if figurines are unavailable.) • Animal stickers • Digital camera (for both student and teacher use) • Individual assessment (see attached)

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Instruction	1. To kick off their work with animals, students will be given a fun initiative where they will make groups based upon animals. Students will be given a card with a labeled picture of an animal and will be asked to find the other members of their class holding the same animal card- only they are not allowed to use words. Instead, students must make the noise their animal makes in order to find the rest of their partners. Once students have found their partners, they may compare cards until every student has found his/her team. 2. Students will create a human pattern using their animal cards. The teacher will facilitate but encourage students to work together to create their own repeating pattern. Once students have made one pattern, their photo will be taken (to be printed and displayed as evidence of learning) and students will be asked to make a different type of repeating pattern. (AB, AABB, ABC, etc.) Students will be challenged when the teacher starts removing students or changing their cards- thus identifying some of the problems when it comes	1. Students will participate in a math workshop with a writing twist. After actively participating in a mini-lesson and guided practice about how to write and solve number sentences (equations) students will be asked to create their own number story that involves a number sentence. (For ex: two elephants were in a field and then three zebras showed up. 2+3=5. There were 5 animals in the field all together.) Students will be required to write their number sentence and draw the animals to illustrate their point, and high-level writers will be asked to write out their actual story as well. All students will participate in a cooperative learning strategy during the debrief portion of the lesson where they will be able to share their number stories with classmates. (This will also require students to ensure that the numbers in their number sentence correctly correlate to the number of animals drawn on their papers- thus representing numbers in pictorial form.)	1. Students will participate in a field work experience to a local (or nearby) zoo. Students will be responsible for studying one specific animal. Before leaving on their field work experience, students will take a short period of time to research their animal via the internet and through non-fiction texts. Students will be looking for basic quantitative data about their animal which will be used later in the unit. Students will record their data on their Pre-Field Work Recording Form (see attached.) 2. Once students have arrived at the zoo, they will need to find their particular animal and complete some simple observations (see attached field work recording form.) Students will be asked to take notes as well as draw at least one picture of their animal and bring this information back to the classroom to be used for a project. 3. When the class has returned back to school, students will have the opportunity to share their field work research with their classmates in small groups in order to compare data and observations.	1. Students will rotate through learning stations centered on animals and the math concepts they have learned throughout the unit. Station 1: Animal patterns- Students will have plastic figurines (or pictures) of different animals and they will be asked to put these animals into a repeating pattern of their choice. After students have created their pattern, they will be asked to take a picture of their work and challenge a peer to identify what pattern they created. The trickier, the better! Station 2: Animal addition- Students will be asked to create their own animal number sentences reminiscent to the workshop model lesson on day 2. The fun twist to this project will be that students will have animal stickers that they can use as a visual representation as they are creating their addition number sentences. Station 3: Book Study- Students will be supplied with different non-fiction books all about different animals. Students will be encouraged	1. Students will review concepts covered throughout the week by looking back at evidence of learning in picture form, field work recording forms, and station work. Students will have the opportunity to notice and wonder about the information collected. 2. Students will be asked to, individually, take an assessment that covers both the creation of repeating patterns but also the creation and solving of a simple equation. 3. If time allows, use the data that students collected during station 3 yesterday to create a large data set of animal names. Ask students to interpret the data in order to discover what animals names appeared most often in literature as well as least often. Use these patterns and trends to introduce both the concept of data landmarks (maximum, minimum, mode) but also the concept of growing patterns

	to finding and creating patterns in the real world. 3. After creating patterns with the animal cards, students will be asked to collect and organize their data as a class. Types of animals will be gathered, numbers of each individual animal will be collected, and students will have the opportunity to "notice" and "wonder" about the data they collected.			to look through these books and record any animal names they see on a piece of writing paper. These names will later be turned into a data set in order to see how many animal names students were able to identify. Station 4: Teacher station- Using both teacher observation and data collected from the workshop on day 2, the classroom teacher will determine students who he/she should meet with in a small group in order to review concepts taught throughout the week.	(instead of just repeating patterns.) This could be completed whole group but then touched upon at a later time for students who are high-achievers in this content area as an extension activity.

	Lesson 1	**Lesson 2**	**Lesson 3**	**Lesson 4**	**Lesson 5**
Student Activities	1. Students will be able to actively participate in a grouping strategy that requires them to use appropriate social skills in order to find their group mates. 2. Students will create a human bar graph and then use the data collected in order to observe information and look for trends and patterns in their data. 3. Students will work with their classmates in order to collect and analyze data.	1. Students will create and write their own number sentences matched to drawn pictures of animals represented in their "number stories." Students will have the opportunity to share their number stories (along with number sentences and pictures) with their classmates at the conclusion of the activity.	1. Students will conduct pre-field work research conducted in the classroom using non-fiction texts and the internet. 2. Students will participate in a field work experience to a local/nearby zoo to observe and take notes about a pre-selected animal. 3. Students will participate in discussions and field work observation comparisons with classmates.	1. Students will rotate through learning stations that will ask them to complete a variety of tasks including creating repeating patterns, researching animals in non-fiction texts, and creating addition problems while representing numbers with animal stickers. While students rotate through stations, the teacher will meet with small groups in order to provide additional instruction for students.	1. Students will participate in a review activity covering the concepts that they have learned throughout the week. 2. Students will take an individual assessment in order to demonstrate their understanding of both repeating patterns and the creation/solving of simple addition problems. 3. If time allows, students will participate in an extension activity that uses data to start to define data landmarks and the analysis of data in a practical sense.

Name _____ Date _____

Repeating Pattern Assessment

I can create a repeating pattern.

Directions:

Use the space below to draw your own repeating pattern. You may use colors, shapes, symbols, etc. to create your pattern, but make sure that it repeats!

Name _____ Date _____

Addition Assessment

I can create and solve a simple addition problem.

Directions:

Make up your own addition number sentence (make sure to solve it to find your answer!) Write your number sentence on the line below:

_____

Draw a picture to represent your addition problem in the box:

Name _____ Date _____

Field Work Recording Form

The animal I am studying is the _____.

This is a picture of my animal in its habitat at the zoo:

Some things I noticed about my animal are:

- _____
- _____
- _____