

# INTANGIBLE CULTURAL HERITAGE LESSON PLAN FOR SUSTAINABLE DEVELOPMENT: DIKETO

GRADES: 3-5



# LESSON SNAPSHOT

In this lesson, students will play an indigenous game called Diketo. They will explore their own and classmates' familiarity with the game and learn its rules. They will have a chance to practice the game and play with one another in pairs or in small groups. To conclude the lesson, students will work in small groups to reflect on the game of Diketo as a real-life math problem, which they can answer questions about and review with the class.

**Learning Goals:** Students will...

- ✓ Learn and play the game Diketo
- ✓ Explore the cultural significance of Diketo across Southern Africa
- ✓ Practice math skills of addition and subtraction based on the game Diketo



(Two girls playing diketo together. Mnyipika, 2019)

### Localization Note:

Diketo is an indigenous game used across Southern Africa. There are many regional variations reflected in its rules, objects of play, gender of players, and even in the name of the game. Diketo in different linguistic contexts, for instance, is called Nhodo, Magave, Upuka, Lingezo, and other names. For the purpose of this lesson, the teacher should feel comfortable using the terms most relevant for their linguistic context and the intangible cultural heritage of their locale.

Note: If the teacher encourages different rules of the game for their class, the corresponding math worksheet should be updated for alignment.

**Interdisciplinary Use:** Mathematics, Modifiable for Physical Education

## LESSON PREP



### Materials Needed:

- Access to ground with soft topsoil, or concrete and chalk to draw game spaces
- Small stones (11 per student, although groups can share if there are not enough)
- Worksheets, one per student (If worksheets are not available, then the teacher will write the questions on the board and distribute blank sheets of paper for students to copy down the information.)
- Optional: Number lines and/or sheets of scrap paper, one per student



### Time:

- Game Introduction (5 minutes)
- Instructions and Play! (30 minutes)
- Math Worksheet and Review (10 minutes)



### Before the Lesson:

1. Review the lesson plan in detail.
2. Write the learning goals on the board so students can view them.
3. Organize a space for students to play Diketo and collect stones to play.
4. Print enough worksheets for every student to have a worksheet, or ensure writing material and a chalkboard are available to write the questions on the board.

# LESSON PLAN

Introduction (5 minutes)

Instructions and Play! (30 minutes)

Math Worksheet and Review (10 minutes)

## Introduction (5 minutes)

Welcome students to class and explain that today's learning will center around an indigenous game that requires skill in math and hand-eye coordination. Call on a student to read the learning goals from the board to the group.



### THEN, READ THE QUESTIONS TO THE GROUP:

- *Who has played Diketo?*

If there are students who are familiar with the game, ask for multiple volunteers to answer:

- From where did you learn it?
- Do you like playing? Why or not why?
- Who typically plays or played this game? (ie. kids, girls, etc.)
- What parts of the country or Africa do people play this game?



**The teacher may record students' responses on the board to highlight student opinions and note when common themes have emerged. The teacher can conclude by reflecting:**

- This game is traditionally used across Southern Africa (can list some of the other names commonly used to refer to the game, such as Nhodo, Magave, Upuka, and Lingezo, or some of the countries where it is played, like South Africa, Zambia, Mozambique, Zimbabwe, and elsewhere).
- In some communities, this is a game played by young girls; in other communities, boys play too.
- Depending on the community, it may have been more common in the parents' or grandparents' generation.



### FINALLY, ASK:

- *Why are we playing the game today?*


Some answers could be...It's fun

- It's fun
- It's a game of shared intangible cultural heritage for the region
- It actually helps you practice math skills

### Instructions and Play! (30 minutes)

When ready, the teacher can invite the class into the location of the game and present instructions verbally and through demonstration.

#### Instructions:

1. Divide students into groups of two or four.
2. Student groups should be situated around soft topsoil where they make a small hole in the ground. Alternatively, students can draw a circle with chalk on cement to mark the "hole." 
3. An 11th stone, ideally the smoothest or largest in the batch, should be put to the side. For purposes of these instructions, the stone will be referred to as a "keto" (a single stone).
4. Students take turns playing. At the start, the first player places their 10 stones in the hole. The first player throws the keto (the 11th stone) in the air. While it is in the air, the player quickly scoops two stones out of the hole with one hand before catching the stone.
5. This student then throws the keto again in the air. While in the air, the student needs to push one of the extracted stones back into the hole with the same hand.
6. If the student succeeds in catching the keto before it hits the ground, then the stone remains beside the student, and counts for their total score for that round.
7. That is the end of the first cycle. With the following throw, two more stones are scooped out again. Then one more is returned. The game continues in this way.
8. If a student drops the keto, takes out the wrong number of stones, or pushes back in the wrong number, then it is the other student's turn and no additional points are awarded to them that turn.
9. The next student should make sure there are 10 stones in the hole before beginning their turn.
10. Students take one turn per round; after all players have completed their turn, the second round begins.
11. Students can play up to 10 rounds. The winner of each round has the highest number of stones beside them and they have advanced the farthest into the game.
12. Students can be encouraged to record scores after every round to help keep track.



(Two girls playing diketo. Areh, 2019)

### During the Game:

While students are playing, the teacher can rotate between the groups to ensure students are properly divided and are playing fairly. The teacher can also provide clarification to students about the rules if any questions arise.

The teacher may want to encourage larger groups of four to be patient and cheer on each other and not interfere with each player's playing of the game while waiting their turn. The teacher can keep time, reminding students when they are nearing the end of the activity.

### Math Worksheet and Review (10 minutes)

When the game is complete, teachers can pass out the worksheets to each student. Alternatively, they can write the questions on the board and distribute blank paper to each student. If the language of the worksheet is difficult to comprehend, the teacher may elect to read the questions orally for the class, going through each question one at a time and providing time for students to record their answers.

Group members can complete the worksheet together or individually. Give the students five to seven minutes to answer all the questions before reviewing the correct answers together and clarifying any confusion about how the answers were achieved. Begin with the first question and conclude with the fifth. If necessary, explain and/or demonstrate how to arrive at the correct answer.

If desirable, the teacher may permit the use of the stones, scrap paper or a number line to aid students' work.



(In other parts of the world, children play a similar game called jacks.)

THE CORRECT ANSWERS ARE LISTED BELOW:

**Answer Key:**

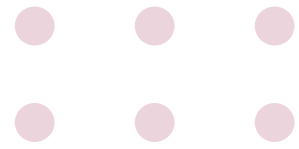
1. 10
2. Aren
3. 8
4. 9
5. 6



THANK STUDENTS FOR PARTICIPATING BEFORE THEY LEAVE FOR THE DAY.

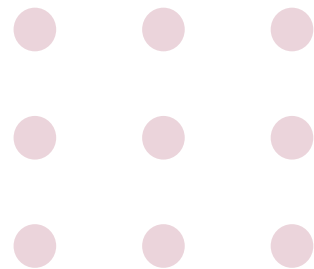
**Want to Go Further?**

1. Incorporating alternative and more complex variations of the game to mix up the fun!
2. Repeating the lesson with new math problems. You can change the difficulty!
3. Connecting this lesson to intangible cultural heritage lessons on sportsmanship.
4. Sharing personal accounts of young people or elders who have rich experience playing this game.



# DIKETO POST-GAME HANDOUT

1. At the start of the game, how many stones are in the central pile?
2. If Solomon dropped the keto in the fourth round and Aren dropped it in the seventh round, who scored higher?
3. During the first turn, after the first two stones are removed but before one is pushed back, how many stones are in the pile?
4. During the first turn, after the stone is pushed back, how many stones are in the pile?
5. During the third turn, after the first two stones are removed but before one is pushed back, how many stones are in the pile?





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# ADDENDUM: CURRICULUM STANDARD ALIGNMENT

## REPUBLIC OF ZAMBIA, MATHEMATICS SYLLABUS

### Grade 3:

**3.3.2:** Carry out addition of numbers in real life situations.

**3.4.2:** Carry out subtraction and addition in real life situations.

### Grade 4:

**4.3.2:** Apply addition to solve problems in real life.

**4.4.2:** Apply subtraction and addition to solve problems in real life.

### Grade 5:

**5.2.2:** Apply addition using the number line to solve problems in real life situations.

**5.3.2:** Apply subtraction and addition using the number line to solve problems in real life situations.

