Quiots

This game involves measurement as a means to introduce the concept of decimal numbers. Quoits is a ring-toss type game where the players toss an object into a target, or get as close to the target as possible. Initially, measurements are taken to the nearest whole meter; later the estimating and measuring is done to the nearest tenth of a meter. You can then extend it to estimating and measuring to the nearest hundredth of a meter.

Possible materials to use:

- Beanbags
- Paper plates
- Nerf balls
- Chalkboard eraser
- Frisbee
- Croquet ball
- Marbles
- Beach balls

Possible materials to use as a target:

- Hula hoops
- Trash can
- Rope or string tied in a circle
- Pylon

Possible starting line markers:

- Ruler/meter stick
- Piece of rope
- Measuring tape line

Directions:
Part 1-
Choose a large area (outdoor or indoor) for this game. Divide students into groups of three or four. Demonstrate the game and scoring procedure inside the classroom before sending students outside.

- Students stand behind a starting line and take turns attempting to toss an object into a ring. Students choose the distance between starting line and target, at least five meters apart. Each group of students may have a different distance.
- At each attempt, the student estimates the distance between where the object landed and the target in meters, shares the estimate with the group, then records estimate on the score sheet. (handout: Quoits 2 score sheet)
- The student uses a meter stick to measure the distance between where the object landed and the target, and then records the actual distance.
- The difference between the estimate and the actual measure is the score for the round.
- The differences can be scored for a game total.

- Students may play up to nine rounds.

Part 2-

- After the game, discuss how to measure more accurately. Structure the discussion so that students determine a need for more precise measurement. Establish the need for tenths.
- Explain the metric system of ten equal parts to each meter, known as decimeters. For these purposes, it is best to call each decimeter a *tenth of a meter*.
- Model measurement using tenths: Introduce both the oral language ("three and seven tenths") and written notation for tenths (3 7/10 and 3.7). Explain that in decimal notation the first number to the right of the decimal point always means how may parts have been used out of ten parts.
- Students practice measuring objects in the classroom to the nearest tenth. (Objects might include student desks, books, chalkboard length, doorway width, tables, etc.) Students record their results on recording sheet. (Quoits 3 handout) You may wish to ask students to record in both meters and tenths of a meter (e.g., 4.5m) and in meters and decimeters (e.g., 4m, 5dm). You may also have students record using fractions, e.g. 4 5/10 meters.

Part 3-

- Repeat process similar to the one above, introducing centimeters as a hundredth of a meter.
- Model measuring in centimeters, introducing it in both oral and written language. Discuss the relationship between centimeters and decimeters. (A centimeter is 1/10 of a decimeter.)
- Revisit the game in part one. This time as children play, they are to measure in centimeters, decimeters and meters. (EX My toss was 4 meters, 3 decimeters and 9 centimeters. Written as 4.39 meters.)

From *Get to the Point, a Beyond Activities Project Module*, California Dept of Education, 1992

QUOITS

After your toss, record your estimate, then the measure to find the actual distance. Finally record the difference between your estimate and the actual distance.

Player One _____

Estimate	Actual distance	Difference between estimate and actual distance

Player Two _____

Estimate	Actual distance	Difference between estimate and actual distance

Player Three _____

Estimate	Actual distance	Difference between estimate and actual distance

Player Four _____

Estimate	Actual distance	Difference between estimate and actual distance

QUOITS

Practice measuring objects in the classroom to the nearest tenth. Record the results in

- Meters and decimeters (e.g. 4 meters and 5 decimeters)
- Meters and a fraction (e.g. 4 5/10 meters)
- Meters and decimal fraction of a meter (e.g., 4.5m)

Object/Distance	Meters and decimeters	Meters and fraction	Meters and tenths