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# Six math clues · answer key

Pinecones

Age 8 / Grade 2 math. Compare tens, then ones. For rounding, locate the two nearby tens and find the closer one; halfway rounds up.

## Math 1 · 74

$47 < 74$ . The greater count is 74.

## Math 2 · 30

32 rounds to 30 because it is 2 away from 30 and 8 away from 40.

## Math 3 · 68

$68 > 59$ . The greater count is 68.

## Math 4 · 90

85 rounds to 90. A ones digit of 5 rounds up to the next ten.

## Math 5 · 26

$26 = 26$ . The shared count is 26.

## Math 6 · 60

56 rounds to 60 because it is 4 away from 60 and 6 away from 50.

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Age 8 / Grade 2 math. Compare two-digit counts and round to the nearest ten. A ones digit of 5 rounds up. Counts describe story collections, not a fixed number of scales on each cone.

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# Reading & writing · answer key

Pinecones

## Reading · 1

A dry cone usually has open scales with gaps. A wet cone usually has close scales and a narrower shape.

## Reading · 2

Different parts of a scale take in water differently. The plant tissue bends as it gains or loses water; it does not need muscles.

## Reading · 3

In dry conditions, scales open and winged seeds can drift on a breeze. Wet seeds can cling to the scales.

## Writing

Accept a command spoken, dictated, drawn, or written. Example: "Watch one dry cone and one damp cone, then draw how the scales look."

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Age 8, Grade 3 reading, Grade 2 math. Collect fallen brown cones with Big nearby; leave green cones on branches, keep feet on the ground, and wash hands afterward. Use shallow dishes, with a grown-up nearby. Changes may take hours; revisit later without a timer or deadline. Many mature common pinecones open dry and close wet, but species differ, and some cones need special conditions to first open. Mature scale tissue is no longer living; its structure still swells unevenly with moisture and bends. The cone is not choosing or using muscles. Empty fallen cones can still change shape. The diorama shows this moisture response faster than it happens at the table, with a qualitative view inside the cone rather than a measured scale angle.

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Welcome speech, dictation, invented spelling, or writing. One command is enough. Example: "Watch one dry cone and one damp cone, then draw how the scales look."

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# Four clues in a cone

Pinecones

## Quiz 1. What are the woody parts stacked around a pinecone called?

They are scales, arranged in spirals around the cone.

## Quiz 2. What usually happens to a common pinecone as it dries?

As the cone dries, its scales open wider, making space for seeds to leave.

## Quiz 3. What makes a wet pinecone's scales close?

Water makes parts of the scale swell differently, bending the woody tissue inward.

## Quiz 4. Why can dry weather be a good time for winged seeds to leave?

A dry winged seed can drift on a breeze. Wet seeds can cling to the cone instead.

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