



Probability, Data & Reaction Time

A no-prep 30–45 minute activity built around the offline dinosaur game. Students generate their own data by playing, then analyze it and compare it to real player data from around the world.

Subjects: Math – Data & Probability · Science – Reaction time

Ages: ~9–13 (Gr. 4–8)

Time: 30–45 min

Materials: device + game, worksheet, pencil

LEARNING OBJECTIVES

- Collect and record numerical data from repeated trials.
- Calculate the mean (average), the range, and identify highest/lowest values.
- Compare a small sample (their class) to a large dataset (all players) and reason about why they differ.
- Discuss variability — what part of a score is luck, and what part is skill and reaction time.

LESSON FLOW

5 min 1 · Warm-up — luck or skill?

Ask the class: is a high dino score down to luck or skill? What would make your score go up? Each student writes a prediction of the score they'll reach.

10 min 2 · Play & collect data

Each student plays 5 rounds and records the score of every round in the worksheet table. The game is a reaction test — you jump the moment you see an obstacle.

10 min 3 · Crunch your numbers

Students calculate their own mean (add 5 scores ÷ 5), and find their highest, lowest, and range (highest – lowest).

10 min 4 · Compare to the world

Collect everyone's average on the board and find the class average. Then compare it to two real numbers from chromedino.com: the typical player's score (median ≈ 175) and the overall average (mean ≈ 590). Why are those two so far apart?

5–10 min 5 · Talk it over

Revisit luck vs skill. Introduce probability: if a student beat their own average in 2 of 5 rounds, the chance of beating it next round is about 2 in 5. Bigger samples give steadier averages.

Differentiate

- **Younger:** just find the highest score and count how many beat 100.
- **Older:** build a bar chart or histogram of class scores; estimate the probability of scoring within a range.
- **Science link:** replay after 10 jumping jacks — does being alert change reaction time?

Teacher tips

- Embed the ad-free game from chromedino.com/classroom — no logins, works on school networks.
- The sheet shows two real figures — typical (≈175) and mean (≈590); the gap between them is the heart of the discussion.
- No devices for all? Play as a class on the board and let students take turns.

Aligns with Common Core Math: representing and interpreting data (5.MD.B.2); summarizing numerical data with measures of center and range (6.SP.B.5); drawing inferences by comparing a sample to a larger population (7.SP.A.1–2); and probability of a chance event (7.SP.C.5). The reaction-time task supports NGSS science practices — analyzing and interpreting data. Adjust the grade band to your class.

My Dino Data

Play 5 rounds. Write down each score. Then work out your numbers.

NAME

CLASS

DATE

Before you play: what score do you think you'll reach?

Round	Score
Round 1	
Round 2	
Round 3	
Round 4	
Round 5	

MY AVERAGE

HIGHEST

LOWEST

RANGE

Our class average

Typical player (median)
≈ 175

Overall average (mean)
≈ 590

Real figures from chromedino.com (2026). Live numbers change – check the site for the latest.

Where does your class average sit — close to the typical player (175), or higher, up toward the overall average (590)?

The overall average (590) is far bigger than the typical score (175). What kind of players could pull the average up that high?

Is the dino game more about luck or skill? What could make your score go up?

Reaction-time challenge

Do 10 jumping jacks, then play one more round. Did your score go up or down? Write your idea about why: