Student Lab + Field Guide

Title: Puttshack STEM Field Guide (Grade 1)

Name: _____ **Group:**_____ **Hole #s:**_____

How we play: One player finishes a hole start-to-finish, then the next player goes.

Tech note: The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished.

A) Force Choice (Quick Science)

On a hole, I tried: ☐ soft hit ☐ hard hit
It went: ☐ near ☐ far
I noticed: _____

B) My Strokes = Adding 1 (1.OA.C.5)

Hole 1 tallies: _____ (draw your own)
Total strokes: ____
Screen match? ☐ Yes ☐ No

Hole 2 tallies: _____
Total strokes: ____
Screen match? ☐ Yes ☐ No

Hole 3 tallies: _____
Total strokes: ____
Screen match? ☐ Yes ☐ No

C) Shape Detective (1.G.A.1)

- I found a circle at Puttshack (draw it):

Circle attribute (circle one): ☐ round ☐ colorful

- I found a rectangle or square (draw it):

Attribute that matters: ☐ sides/corners ☐ color

D) Tech Feedback (ISTE 1.1.c)

The game screen helped me (circle one):

Check my counting Learn Try again better

(Grade 1–2) — 45–60 minutes

Puttshack STEM Field Trip (On-site)

Time	Setting	Led by	Materials
45–60 minutes	Puttshack (on-site)	Teacher (Trip Lead)	Supplies to bring: Clipboards/boards, pencils, student lab sheets, optional "Soft/Hard" cards. Provided by Puttshack: Gameplay, putter, and Trackaball™ ball.

Led by: Teacher (Trip Lead) — supported by Puttshack associates

Focus: Shapes (Defining Attributes) • Counting as Adding/Subtracting • Tech Feedback (Trackaball™)

Scoring note: Puttshack scoring is points-based—players try to earn as many points as possible. More information: https://www.puttshack.com/blog/happenings/9-hole-scoring/

Standards Alignment

- CCSS Math (1.OA.C.5): Relate counting to addition and subtraction.
  Used when students "add 1" each stroke, compare more/fewer, and describe differences.

- CCSS Math (1.G.A.1): Distinguish defining vs non-defining attributes of shapes.
  Used when students identify circles/rectangles/squares by sides/corners/roundness (not color/size).

- ISTE (1.1.c Empowered Learner): Use technology/tools to seek feedback to improve practice and demonstrate learning.
  Used when students compare their tallies/counting to the Trackaball™ screen and adjust.

Materials

- Supplies to bring: clipboards/boards, pencils, student lab sheets, optional "Soft/Hard" cards.
- Provided by Puttshack: gameplay, putter, and Trackaball™ ball.

Minute-by-Minute Script (45–60 minutes)

0:00–0:03 | Welcome + Safety

Teacher says:
"Hi friends! Welcome to Puttshack. Today is a STEM adventure. That means we will play, learn, and think like scientists and mathematicians."

Teacher says:
"Safety rules: Putters stay low. We walk. We take turns. We use kind words."

Call-and-response:
Teacher: "*Putters low!*" → Students: "Putters low!"
Teacher: "*Walk!*" → Students: "Walk!"
Teacher: "*Take turns!*" → Students: "Take turns!"

0:03–0:08 | Trackaball™ Tech Feedback

Teacher says:
"At Puttshack, the ball is special. The system shows updates on the screens. The screen gives us feedback—that means it helps us check our work and get better." The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished.

Teacher asks:
"Are we still going to count?"
Students say: "Yes!"

Teacher says:
"Yes! We will use the screen as a helper to check our counting."

Quick practice:
"When you see the screen change, whisper: 'That's feedback!'"

0:08–0:12 | Shapes Mini-Lesson

Teacher says:
"Shapes have defining attributes. Those are the things that make a shape that shape."

Teacher asks students for quick definitions:

- *What is a circle?* "A circle is round and has no corners."
- *What is a square?* "A square has 4 sides and 4 corners, and all sides are the same length."
- *What is a rectangle?* "A rectangle has 4 sides and 4 corners, and it has 2 long sides and 2 short sides."

Teacher says:
"Color and size are not the shape name. The attributes are!"

Teacher says:
"If a square is red, is it still a square?" → Students: "Yes!"

0:12–0:15 | Counting = Adding 1

Teacher says:
"Every time you hit the ball, you are adding 1."

Teacher models with fingers:
"Stroke 1... I have 1. Stroke 2... I have 2. I keep adding 1."

Teacher says:
"*We can also use subtraction words: more, fewer, one more, one less."*

0:15–0:20 | Station 1: Force Warm-Up (Soft vs Hard)

(Quick science piece to support better putting + observation.)

Teacher says:
"Now we test: soft hit and hard hit."

Teacher says:
"Predict: will a soft hit go near or far?"
Do 2–3 soft hits from the same start spot.

Teacher says:
"Now predict: will a hard hit go near or far?"
Do 2–3 hard hits from the same start spot.

Teacher asks:
"What happened most of the time?"
Students: "Hard went farther / Soft went shorter."

Teacher connects:
"That helps us choose how hard to hit on the course."

Main Activity: 3 Holes With Math + Shapes + Tech Feedback

0:20–0:22 | Set Groups + Roles

Teacher says:
"Teams of 3–4. Choose roles: Putter, Counter, Tally Marker, Shape Spotter. We will rotate roles each hole."

Gameplay flow: *At Puttshack, each player plays the hole start-to-finish (from the first stroke until the ball goes in). Then the next player goes, until everyone completes the hole.*

0:22–0:34 | Hole 1 (Counting + Tallies + Screen Check)

Teacher says:
"*On this hole we are mathematicians. The screen tracks, but we practice too."*

After each stroke (repeat script):
Teacher: "*Counter?" → Student: "1...2...3..."*
Teacher: *"Marker, add one tally. We are adding 1!"*

At the end of Hole 1:
Teacher: *"Count your tallies. That's your number."*
Teacher: *"Now look at the screen. Does it match?"*
Students: "Yes/No."

If No (support script):
"That's okay—feedback helps us learn. Let's re-check our tallies and counting."

0:34–0:46 | Hole 2 (Add/Sub Language + Tech Feedback)

Before starting:
Teacher says:
"New roles! Rotate."

During play: same counting/tally script.

After Hole 2:
Teacher: "*Did you have more strokes or fewer strokes than Hole 1?"*
Students: "More/Fewer."

Teacher follow-up (finger math):
"Show me with fingers: How many more? How many fewer?"

Screen check again:
"*Does the screen match our tallies? That's feedback!"*

0:46–0:58 | Hole 3 (Shape Detective + Defining Attributes)

Before starting:
Teacher says:
"New roles! Rotate."

Shape focus during this hole:
Teacher says:
"*Shape Spotters: find a circle and a rectangle or square on or near this hole."*

Guide asks (defining attribute prompt):
"*Tell me one defining attribute."*

- *"Circle is round."*
- *"Square has 4 equal sides."*
- *"Rectangle has 2 long and 2 short sides."*

Counting + screen check continues as before.

Closing

0:58–1:00 (for 60 min) OR 0:58–0:60 (wrap early) | 2-Minute Wrap-Up

Teacher says:
“Quick share:

1. *What tool gave us feedback?”*
   Students: “The screen!”
2. *“What do we do each time we hit the ball?”*
   Students: “Add 1!”
3. *“Tell me a defining attribute of a circle, square, or rectangle.”*
   Students respond.

Guide says:
“You used math, shapes, and feedback today. That’s STEM!”

Post-visit Activity (Grades 1-2): A Hole New Design

Connect your Puttshack field trip to shapes, counting, and technology feedback (Trackaball™).

Scoring note: Puttshack scoring is points-based—players try to earn as many points as possible. More information: https://www.puttshack.com/blog/happenings/9-hole-scoring/

Time	Setting	Led by	Materials
20 minutes	Classroom	Teacher (Post-visit)	Student worksheet, pencils, crayons/markers

Standards Alignment

- CCSS Math (1.G.A.1): Distinguish defining attributes of shapes (sides, corners, closed shapes) vs non-defining attributes (color, size).
- CCSS Math (1.OA.C.5): Relate counting to addition and subtraction (each stroke adds 1; more/fewer strokes).
- ISTE (1.1.c Empowered Learner): Use tools/technology to seek feedback and improve practice (connect to Puttshack Trackaball™ + screen feedback).

Learning Goals (Student-Friendly)

- I can design a mini-golf hole using at least three shapes and label them.
- I can tell the defining attributes of my shapes (sides, corners, round).
- I can set a stroke goal (par) and use adding/subtracting words (one more, one less).
- I can explain how Puttshack Trackaball™ feedback could help players improve.

Key Vocabulary

- Shape, triangle, square, rectangle, circle, defining attributes, sides, corners, stroke, par, feedback, Trackaball™

Scripted 20-Minute Lesson (with time stamps)

0:00-0:02 | Welcome back + connect to Puttshack

- **Say**: *"Remember our trip to Puttshack? Today we will design our own mini-golf hole!"*
- **Say**: *"Puttshack uses a special ball called Trackaball™. The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished."*

0:02-0:05 | Review shapes and defining attributes (1.G.A.1)

- **Say**: *"Shapes are named by what makes them that shape. That is called defining attributes."*
- **Ask**: *"What makes a triangle a triangle?" (3 sides, 3 corners)*

- **Ask**: "What makes a circle a circle?" (round, no corners)
- **Say**: "Color and size do not change the shape name."

0:05-0:07 | Introduce the task: A Hole New Design

- **Say**: "You will draw your own mini-golf hole like a Puttshack course designer."
- **Say**: "Your dream hole must include at least THREE shapes and you must label them."
- **Give examples:** "Square bumper, circular cup, triangular ramp."

0:07-0:15 | Work time: design + label + attributes

- **Say**: "First, draw your course walls and a start spot."
- **Say**: "Next, add at least three shapes (triangle, circle, rectangle/square)."
- **Say**: "Label each shape and write one defining attribute (sides/corners/round)."
- **Circulate and prompt:** "How many sides? How many corners?"

0:15-0:18 | Counting and stroke goal (1.OA.C.5)

- **Say**: "Choose a par (stroke goal) for your hole."
- **Say**: "Every stroke is adding 1. If you took 2 strokes, one more stroke makes 3."
- **Ask**: "If your par is 4 and you have 2 strokes so far, how many more to reach 4?"

0:18-0:20 | Tech reflection: Trackaball™ feedback (ISTE 1.1.c) + share

- **Say**: "At Puttshack, Trackaball™ and the game screen at each hole give feedback. Feedback helps players improve."
- **Ask**: "What would the screen help you check on your dream hole?" (strokes, points, both)
- **Invite 1-2 quick shares**: "Show one shape on your hole and tell its defining attribute."

Differentiation

- **Support**: Provide shape word bank; allow students to trace shapes; prompt with "How many sides/corners?"
- **Challenge**: Add a fourth shape; add two different paths; write a sentence explaining how feedback would help.

Puttshack Post-visit: A Hole New Design (Grades 1-2)

Use shapes like a course designer and imagine Trackaball™ feedback on the game screen!

Name: _____ **Date:** _____

1) A Hole New Design Checklist (check when done)

☐ I drew a start spot and a cup (hole).

☐ I included at least THREE shapes.

☐ I labeled my shapes (triangle, circle, rectangle, square).

☐ I wrote one defining attribute for each labeled shape.

2) Draw Your Dream Mini-Golf Hole

Tip: Add a square bumper, a circular cup, and a triangular ramp. Add arrows to show the ball path.

3) Label Shapes + Defining Attributes (what makes it that shape?)

Shape	**Label on my drawing**	**Defining attribute** (example: 3 sides)
Triangle		
Circle		
Rectangle or Square		

4) Strokes = Adding 1 (Math)

- My hole par (goal strokes) is:_____
- If I took 2 strokes and then 1 more stroke, I would have_____strokes.
- If my par is 4 and I have 2 strokes so far, I need _____ more strokes to reach 4.

5) Puttshack Tech Feedback (Trackaball™)

- Trackaball™ tracks each hit, and the game screen at each hole gives feedback. It shows your hits as you play and your points/score. At the 9th hole, it shows your final score and ranking once all players are finished.
- What would it help you check? (*circle*)

Strokes Points Both

One way feedback could help me improve is: _____

_____

Pre-visit Activity (20 minutes): The Shape of the Game

Grades 1-2 | Puttshack STEM Field Trip Prep

Time	Setting	Led by	Materials
20 minutes	Classroom	Teacher (Pre-visit)	Student worksheet, pencils, crayons/markers. Optional: picture of a putter and Trackaball™ ball; tape for close/far demo.

Purpose

Students are introduced to Puttshack equipment (putter + Trackaball™ ball), notice how mini-golf uses shapes, and make a simple physics connection about pushes (force) using Newton's Laws in kid-friendly language.

Standards Alignment

- CCSS Math (1.G.A.1): Describe and compare shapes using defining attributes (sides, corners, closed shape).
- CCSS Math (1.OA.C.5): Connect counting to adding and subtracting (each hit adds 1 stroke; compare more/fewer).
- ISTE (1.1.c Empowered Learner): Use tools/technology for feedback to improve (Puttshack screens provide feedback during the visit).

Materials

- 1 copy per student: The Shape of the Game (Student Worksheet)
- Pencils and crayons/markers
- *Optional:* picture of a putter and the Puttshack Trackaball™ ball (or a short slide/image)
- *Optional:* tape on the floor to mark a "close" target and a "far" target for a quick demo

Key Vocabulary (Student-Friendly)

- Shape, triangle, circle, rectangle, sides, corners
- Push, force (a push), close, far
- Feedback (helpful information), Trackaball™

Facilitator Notes (Read Before Teaching)

- Keep the shape talk focused on defining attributes: sides/corners/round (not color/size).
- When students answer the physics question, reinforce: farther target usually needs a bigger push.
- Use Puttshack language: "At Puttshack, the Trackaball™ tracks play, and the leaderboard screen at each hole shows feedback."

- The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished.

Minute-by-Minute Script (20 minutes)

	Teacher Script
0:00-0:02	*"Today we're getting ready for our Puttshack STEM field trip! At Puttshack, you'll use a putter and a special ball called the Trackaball™. The Trackaball™ helps the game track what happens, and the screens show feedback to help us learn." The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished."*
0:02-0:05	*"Let's meet the equipment. This is a putter. This is the ball. When we hit the ball, we are giving it a PUSH. A push is a force."* **Ask**: *"What do we do with a putter?"* (Students: "Hit the ball!")
0:05-0:08	*"Mini-golf courses are built using shapes. Shapes make walls, corners, and obstacles."* **Say and gesture:** *"Triangle: 3 sides, 3 corners." "Rectangle: 4 sides, 4 corners." "Circle: round, no corners."* **Ask**: *"Does color matter for the shape name?"* (Students: "No!")
0:08-0:15	*"Now we'll do a Shape Hunt on our worksheet. Circle triangles, circles, and rectangles in the sample mini-golf hole. Then count how many of each you found and write the number."* **While circulating:** *"How do you know it's a triangle?" "How do you know it's a circle?"*
0:15-0:18	*"Science time! Which hit needs a bigger PUSH: a hole that is close, or far away?"* (Students: "Far away!") **Newton's Laws simplified:** *"A push makes things move."* *"To go farther, you usually need a bigger push."*
0:18-0:20	*"Great work! At Puttshack, look for shapes on the course and think about your push. Remember: the Trackaball™ and the screens that give us feedback which helps us learn and improve."*

Exit check: *"Name one shape you'll look for." "If the hole is far, do you need a bigger or smaller push?"*

Differentiation (Optional)

- Support: Provide a triangle/circle/rectangle reference card; allow students to trace shapes with a finger.
- Challenge: Ask students to explain how they know a shape is a triangle/rectangle using "because" (defining attributes).

The Shape of the Game

Pre-visit Student Worksheet | Grades 1-2 | Puttshack

Name: _____ **Date**: _____

Part A: Meet the Equipment

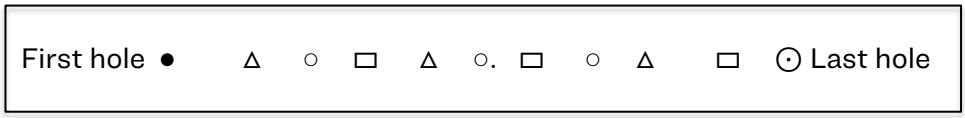
At Puttshack, we use a putter and a special ball called the Trackaball™. The Trackaball™ ball tracks play, and a game screen at each hole shows your hits and points/score.

- Circle the tool we use to hit the ball: Putter Helmet Spoon

Part B: Shape Hunt (Circle the Shapes)

Directions: Look at the sample mini-golf hole below. *Circle the TRIANGLES, CIRCLES, and RECTANGLES you see*.

SAMPLE MINI-GOLF HOLE (Shape Map)



(Walls make a big rectangle boundary.)

- Triangle count:_____ Circle count: _____ Rectangle count: _____

One defining attribute (circle the correct answer):

1) A triangle has 2 3 4 sides.

2) Does a circle have corners? Yes No

3) A rectangle has 2 4 6 corners.

Part C: Counting = Adding 1 Stroke

Each time you hit the ball, you add 1 stroke.

- If you take 1 hit + 1 hit + 1 hit, how many strokes total is that? _____ (1, 2, or 3)

Part D: Physics Intro (Newton's Laws Simplified)

- Which hit needs a bigger PUSH? (Circle one) Close hole Far hole
- Finish the sentence: If the hole is far, I need a _____ push. (bigger / smaller)

Optional Reflection (1 sentence)

At Puttshack, I will look for shapes like _____ and use a _____ push when the hole is far.

Grade 2 Lab & Field Guide (Data + Observations)

Title: Puttshack STEM Field Guide (Grade 2)

Name: _____**Group:** _____**Hole #s:**_____

How we play: One player finishes a hole start-to-finish, then the next player goes.

Tech note: The Trackaball™ ball is the main technology. It tracks each hit, and the game screen at each hole shows your hits as you play and your points/score. At the 9th hole, the screen shows your final score and a ranking once all players are finished.

A) Counting = Adding 1 + Compare (1.OA.C.5)

- Hole 1: Tallies: _____ Total: _____Screen match ? ☐ Yes ☐ No
- Hole 2: Tallies: _____ Total: _____ Screen match? ☐ Yes ☐ No
    - Did Hole 2 have more, or less tallies than Hole 1? _____
    - What is the difference? _____stroke(s).
- Hole 3: Tallies: _____ Total: _____ Screen match? ☐ Yes ☐ No
    - Did Hole 3 have more, or less tallies than Hole 2? _____
    - What is the difference? _____stroke(s).

B) Shapes: Defining Attributes (1.G.A.1)

<u>Find one circle and one rectangle or square.</u>

- Circle location/feature:
- Defining attribute (write it): “A circle is .”

- Rectangle or square location/feature:

- Circle one: ☐ rectangle ☐ square

- Defining attribute (write it): “It has .”

C) Tech Feedback (ISTE 1.1.c)

- The game screen feedback told me:

  ☐ my points/score

  ☐ my strokes

  ☐ both

- One change I made because of feedback:

  “I changed “