Homeschool Self-Guided Education Packet

TEACHER GUIDE

GRADES K - 1

STUDENT SHEETS INCLUDED

LEGO DISCOVERY CENTER

VISIT GUIDE: GRADE K-1

Welcome to LEGO® Discovery Center

LEGO® Discovery Center
connects learning and fun together like LEGO® bricks!

Our self-guided homeschool visits allow students to **explore, discover**, **and create** in an engaging environment filled with hands-on activities. The guide is designed to add fun, focused, and interactive learning during your visit.

This guide includes **curriculum-based challenges and activities** covering Mathematics, English, History, and Science for 3 attractions! Including:

MINILAND
Marvel at LEGO landmarks and build your own MINILAND

LEGO® Kingdom Quest
Go on a science adventure!

LEGO® Racers Build & Test
Design and test your way to the finish line!

The attractions can be visited in any order.

TEACHER GUIDE: GRADES K-1

LEGO® MINILAND

MINILAND is a miniature replica featuring the city's most loved buildings and landmarks. Fun Facts: All of the MINILAND models took a total of 5000 hours to design and build. MINILAND is made up of over 1.5 Million LEGO® Bricks. There are over 500 Minifigures!

Challenge

Students are challenged to explore MINILAND and do the following:

- Observe and describe landmarks.
- Classify natural vs. human-made features.
- Represent ideas through drawings/models.
- Begin connecting landmarks to people and communities.
- Share ideas through speaking/drawing.

Preparing for the Activity

Questions and Definitions:

- **Q: What is a landmark?**
- A: An object or feature of a landscape or town that is easily seen and recognized from a distance, especially one that enables someone to establish their location.

- **Q: What is a natural landmark?**
- A: a physical feature in the landscape, such as a mountain, waterfall, cave, or a body of water, that is easily recognized and stands out from its surroundings, not created or significantly altered by humans

- **Q: What is a Human-Made landmark?**
- A: a notable, impressive, or unique structure or feature built by people, rather than by nature. These landmarks can be ancient ruins, modern architectural feats, or other structures that stand out in a landscape, serving to identify an area, a city, or a nation.

TEACHER GUIDE: GRADES K-1

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Learning Objectives

This MINILAND activity supports early science, engineering, and social studies learning goals for Kindergarten and Grade 1 by helping students:

- Observe and describe landmarks and features in their environment.
- Classify natural vs. human-made features.
- Represent ideas through drawings and simple models.
- Connect landmarks to communities and culture.
- Communicate their ideas through speaking and drawing.

The activity reinforces foundational observation, classification, modeling, and communication skills, while also building early community and geography awareness.

Georgia Standards Addressed

Georgia (GSE – Kindergarten & 1st Grade Science & Social Studies)

- **Science:** Observing properties of earth materials (SKP1), classifying natural/human-made features.
- **Social Studies (SSKG2, SS1G3):** Identifying community landmarks and explaining their importance.
- **Science & Engineering Practices:** Drawing models and sharing observations.

Student Name: _____

MINILAND: Landmark Activity

Part 1 – Landmark Scavenger Hunt

Look around MINILAND. Can you find these? Circle them when you do!

Sports game

Sculpture

Ride or attraction

Airport

Fountain

Train

Tall building

Lake

Part 2 – Natural or Human-Made?

Draw a line to match each landmark.

☐ A sports game	☐ NATURAL
☐ An airport	☐ HUMAN-MADE
☐ A fountain	☐ NATURAL
☐ A lake	☐ HUMAN-MADE
☐ A sports game	☐ NATURAL
☐ An airport	☐ HUMAN-MADE
☐ A fountain	☐ NATURAL
☐ A lake	☐ HUMAN-MADE

Student Name: _____

MINILAND: Landmark Activity

Part 3 – My Dream MINILAND

Draw 4 landmarks you would put in your MINILAND. Then head over to any build zone and recreate your scene using LEGO® bricks.

Student Name: _____

MINILAND: Landmark Activity

Part 4 – Share Your Ideas!

Finish the sentences:

- My favorite landmark is _____
- I like it because _____
- People visit landmarks because _____

_____

Part 5 – "I Can" Statements

Kindergarten

- I can find and name special places in a city.
- I can tell if something is natural (like a lake) or human-made (like a building).
- I can draw my own model of a city with landmarks.
- I can talk about why people like to visit these places.

Grade 1

- I can observe and describe what landmarks look like.
- I can sort landmarks into groups (natural or human-made).
- I can create a drawing of my dream MINILAND.
- I can explain why I chose certain landmarks.

TEACHER GUIDE: GRADES K-1

LEGO® Kingdom Quest

Kingdom Quest is a ride in which riders board carriages and are transported through a series of interactive screens. Each person in the carriage is provided with a "blunderbuss" and compete to save the princess and get the highest score!

Learning Objectives

- Observation & Data Collection: Students track and compare scores across multiple trials.
- Data Representation: Using tables, grids, and visuals builds early math and data-literacy skills.
- Cause & Effect Reasoning: Changing seat position introduces simple variables and fair testing.
- Communication & Reflection: Explaining results and fairness builds argument-from-evidence skills.

Georgia Curriculum Standards Addressed

- **Science (SKP1, S1P1):** Observe motion and describe changes caused by actions.
- **Math (MGSEK.MD, MGSE1.MD):** Classify and organize data into categories and represent them graphically.
- Students engage in scientific communication when they share results and reflect on fairness.

Challenge

Students are instructed via voiceovers to zap the bad guys with the blunderbuss – this is done by pointing and shooting. A score appears on a screen in front of each students which tallies their success in zapping the bad guys. To gather the appropriate amount of data, enjoy the ride up to 4 times! Adults are encouraged to ride also; this way students have more data to utilize.

- Ride 1: Choose any seat and sit on the right side.
- Ride 2: Choose the same seat but sit on the left side.
- Ride 3: Choose a seat in a different row, sit on the right side.
- Rode 4: Choose the same row but sit on the left side.

At the conclusion of each ride, students must remember their score. Students can also ask other riders what their scores were. After exiting the ride each time, students must write down their score and those of others.

Post Challenge

Students are encouraged to think about the different ways they can represent this data and are to explore how the same data can be represented in different ways. They are challenged to represent the data in a grid form. They can also reflect on whether Kingdom Quest was fair.

Student Name: _____

Kindergarten & 1st Grade Science Adventure!

Today, you get to be a scientist! Ride, zap the bad guys, record your score, and look for patterns.

Part 1 – My Ride Data

Ride #	Seat	Side	My Score	Friend's Score
1	Same Seat	Right		
2	Same Seat	Left		
3	New Row	Right		
4	Same Row	Left		

Part 2 – Show Your Data

Draw tally marks, blasters, or color bars to show your scores!

Ride 1	
Ride 2	
Ride 3	
Ride 4	

Student Name: _____

Kindergarten & 1st Grade Science Adventure!

Part 3 – Patterns & Fairness

1. **What did you notice?**
   - Which ride gave you the biggest score? _____
   - Which ride gave you the smallest score? _____

2. **Did you see a pattern?**
   - Did right side or left side do better? _____
   - Did front row or back row do better? _____

3. **Fair or Not Fair?**
   - Do you think the game was fair for everyone? Why or why not?

_____

_____

Part 4 – NGSS Reflections

Today, you were a scientist!

- You asked questions.
- You collected data.
- You looked for patterns.
- You shared your ideas.

Scientists use data to explain the world. You used your scores to explain what happened on the ride!

TEACHER GUIDE: GRADES K-1

LEGO® Build & Test

In the Build and Test area, students will find brick pits featuring car pieces including wheels, body pieces, and axels. They can then use two different ramps to test the durability and speed of their cars.

Georgia Curriculum Standards Addressed

This activity aligns strongly with GSE curriculum standards by supporting:

- Forces & Motion Exploration: Students directly observe how pushes, pulls, and ramp height affect speed and distance.
- Data Collection & Representation: Recording results in simple categories, charts, or tables builds foundational math/data skills.
- Prediction & Reflection: Encourages early scientific thinking through making predictions, testing, and refining designs.
- Engineering Practices: Introduces the design cycle (plan → build → test → improve) in an age-appropriate, hands-on format.

- **Science (SKP1, S1P1): Investigate pushes and pulls and how they change motion.**

- **Math (MGSEK.MD & MGSE1.MD): Classify, compare, and represent simple data.**

- **Engineering Practices: Predict outcomes, test, and suggest improvements to designs.**

Challenge

In this workshop, students will design and build their own Lego race cars, then test them on a ramp to see how far and fast they travel. Before testing, students will make predictions about how their car will perform. During the races, they will observe results, collect simple data (fast, medium, slow; distance; or winner), and record their findings on a worksheet.

Post Challenge

Afterward, students will reflect on what worked, what could be improved, and sketch an updated design.

Race Car Challenge: Build. Test, Improve!

Part 1 – Build Your Car

- Use LEGO® bricks, wheels, and axles to make a race car.
- Make sure your wheels can roll easily.
- Your car should be strong enough to go down the ramp without falling apart.

Think: What size wheels will you use? Will your car be long, short, heavy or light?

Part 2 – Make a Prediction

Check your prediction before testing.

- ☐ My car will go **fast**
- ☐ My car will go **medium**
- ☐ My car will go **slow**
- ☐ My car will **go far**
- ☐ My car will **not go very far**

Part 3 – Test Your Car

- Place your car at the top of the ramp.
- Let it go – no pushing!
- Watch carefully.
- Test your car 2 more times.
- Record what happens on the next worksheet.

Race Car Challenge: Build. Test, Improve!

Part 4 – Race Results

Record results below. Put an "X" under the speed your car traveled and explain what happened differently during each test.

Test	Fast	Medium	Slow	Winner (if racing)	Notes (distance, straight, wobbly?)
#1					
#2					
#3					

Part 5 – Improve Your Car

Question: What could make your car better? Make changes and test again!

- ☐ Big wheels
- ☐ Small wheels
- ☐ Long body
- ☐ Short body
- ☐ Low body
- ☐ Tall body
- ☐ Wide body
- ☐ Thin body
- ☐ Dark colored bricks
- ☐ Light colored bricks
- ☐ Windshield
- ☐ No windshield
- ☐ Heavy car
- ☐ Light car

Car Building & Racing Investigation

Part 6 – Reflection

Circle One:

- My car went: Faster than I thought Slower than I thought About the same

Answer the Questions:

- What helped your car go fast?

_____

- What would you change next time?

_____

Draw your improved car idea: