

# NOVA & MAYA - Learning Companion

## Chapter 7 Printable Activity Packet

### Test the Label

### Before printing

- Print one-sided at 100% size. An adult handles scissors.
- Keep every RESULT card face-down until the chosen test is announced.
- Use only the safe container contents named in the module.
- Predictions are starting ideas, not mistakes to punish.

### No-printer version

Read from a screen and cover later result cards. Children can answer aloud or on scrap paper.

### Packet contents

- Three container labels and test cards
- OBSERVED / ASSUMED / TESTED sorting cards
- Position and explanation-status cards
- Three complete older-child investigations with staged results

## Container Labels

### **HEAVY**

Attach to one identical opaque container.

### **LOUD**

Attach to one identical opaque container.

### **EMPTY**

Attach to one identical opaque container.

## Allowed Test Cards

### **GENTLE TWO-HAND LIFT**

Keep the container over the table or floor.

### **ONE SLOW TILT**

Listen once. Do not shake.

### **ASK AN ADULT TO OPEN**

The adult opens and shows the contents.

## Sort What Happened

### **OBSERVED**

Place matching statement cards here.

### **ASSUMED**

Place matching statement cards here.

### **TESTED**

Place matching statement cards here.

## Statement Cards

### **CUT-OUT STATEMENT**

The label says HEAVY.

### **CUT-OUT STATEMENT**

This must be difficult to lift.

### **CUT-OUT STATEMENT**

I lifted it gently with two hands.

### **CUT-OUT STATEMENT**

The container made no sound during one slow tilt.

### **CUT-OUT STATEMENT**

A quiet container must be empty.

### **CUT-OUT STATEMENT**

The adult opened it and showed a folded towel.

### **CUT-OUT STATEMENT**

The label tells the whole truth.

### **CUT-OUT STATEMENT**

Four paper balls were inside the container labeled EMPTY.

### **CUT-OUT STATEMENT**

I asked what test was allowed before touching it.

## Discussion and Revision Cards

### **POSITION A**

Delay assumptions until the available evidence has been tested.

### **POSITION B**

Assumptions are unavoidable; name them and test the ones that could change the answer.

### **UNSURE**

I need another reason or example.

### **KEEP MY EXPLANATION**

Point to this after each result.

### **REVISE MY EXPLANATION**

Point to this after each result.

### **REPLACE MY EXPLANATION**

Point to this after each result.

### **REFRAME THE QUESTION**

The question we should be asking is: \_\_\_\_\_

## Investigation 1: THE CHANGING-LIGHT PLANTS

### OPENING OBSERVATION

Two fictional plants began almost alike. Plant A was taller yesterday, but today it stopped growing while Plant B grew. A note on the tray says: BAD FERTILIZER.

### POSSIBLE EXPLANATION A

The fertilizer prevented Plant A from growing.

### POSSIBLE EXPLANATION B

The strongest light source changed direction, so yesterday's growth pattern no longer predicted today.

Commit to A, B, or UNSURE. Predict what your chosen test will show.

### Choose One Test

#### TEST 1 - Compare soil nutrients

Announce this choice before revealing the matching result.

#### TEST 2 - Check the light log

Announce this choice before revealing the matching result.

#### TEST 3 - Measure stem direction

Announce this choice before revealing the matching result.

## Investigation 1: Staged Results

Keep all results face-down. Reveal only the result that matches the chosen test.

### **RESULT 1**

The soil readings are nearly the same.

### **RESULT 2**

Clouds arrived; an overhead lamp became the strongest light.

### **RESULT 3**

Plant A changed from leaning toward the window to growing upward.

### **QUESTION REFRAME - REVEAL LAST**

Instead of 'Which fertilizer failed?' ask: 'What condition changed between yesterday and today?'

## Investigation 2: THE WARM TABLET

### OPENING OBSERVATION

A fictional classroom tablet feels warm and its battery is dropping quickly. A sticker says: BROKEN BATTERY.

### POSSIBLE EXPLANATION A

The battery is damaged.

### POSSIBLE EXPLANATION B

A large background update is using extra power for a short time.

Commit to A, B, or UNSURE. Predict what your chosen test will show.

### Choose One Test

#### TEST 1 - Check battery health

Announce this choice before revealing the matching result.

#### TEST 2 - Check active tasks

Announce this choice before revealing the matching result.

#### TEST 3 - Wait safely after the update

Announce this choice before revealing the matching result.

## Investigation 2: Staged Results

Keep all results face-down. Reveal only the result that matches the chosen test.

### RESULT 1

The battery-health report is normal.

### RESULT 2

A large system update is running.

### RESULT 3

Temperature and power use return to normal.

### QUESTION REFRAME - REVEAL LAST

Instead of 'How do we replace the battery?' ask: 'What is causing the temporary heat and power use?'

## Investigation 3: THE ROBOT AT THE BLUE LINE

### OPENING OBSERVATION

A fictional wheeled robot stops every time it reaches a blue line. A report says: MOTOR FAILURE.

### POSSIBLE EXPLANATION A

The motor fails at that part of the floor.

### POSSIBLE EXPLANATION B

A line-detection setting tells the robot to stop at blue boundaries.

Commit to A, B, or UNSURE. Predict what your chosen test will show.

### Choose One Test

#### TEST 1 - Test the motor away from the line

Announce this choice before revealing the matching result.

#### TEST 2 - Cover the blue line with plain paper

Announce this choice before revealing the matching result.

#### TEST 3 - Review the settings

Announce this choice before revealing the matching result.

## Investigation 3: Staged Results

Keep all results face-down. Reveal only the result that matches the chosen test.

### RESULT 1

The motor moves normally.

### RESULT 2

The robot continues forward.

### RESULT 3

Boundary Stop: BLUE is switched on.

### QUESTION REFRAME - REVEAL LAST

Instead of 'Why is the motor broken?' ask: 'What signal tells the robot to stop?'