

4th
Grade

Math Spiral Review

Puzzle-a-Day Escape Room Tasks

January/Winter Math Review Challenges

24 Escape Room
Style Tasks

Print or Digital

Fun Math Puzzles



Luna Nova Training Task 14: Off the Beaten Path

Somewhere in Luna Nova is Dr. Cosmo's prototype lab, where clever machines, experimental gadgets, and a few questionable ideas are kept behind a secure access route. Solve each multiplication problem and follow the correct path through the maze to uncover the password.

START

Maze path: 42 × 18 → 716 → 29 × 24 → 472 → 29 × 28 → 682 → 28 × 44 → 1,232 → ...

Legend:

A	•	•	•	•	•	N	•	•	•	•	•
B	•	•	•	•	•	O	•	•	•	•	•
C	•	•	•	•	•	P	•	•	•	•	•
D	•	•	•	•	•	Q	•	•	•	•	•
E	•	•	•	•	•	R	•	•	•	•	•
F	•	•	•	•	•	S	•	•	•	•	•
G	•	•	•	•	•	T	•	•	•	•	•
H	•	•	•	•	•	U	•	•	•	•	•
I	•	•	•	•	•	V	•	•	•	•	•
J	•	•	•	•	•	W	•	•	•	•	•
K	•	•	•	•	•	X	•	•	•	•	•
L	•	•	•	•	•	Y	•	•	•	•	•
M	•	•	•	•	•	Z	•	•	•	•	•

Luna Nova Training Task 12: Food For Thought

Dr. Cosmo invented the Meal-O-Matic to divide carefully measured ingredients among several recipes. He insists it can prepare anything, although Dr. Celeste has requested further testing before approving "mystery stew mode." Find the missing numerators to uncover the activation code for the Meal-O-Matic.

Star Lentil Mix: $\frac{5}{8} = \frac{2}{8} + \frac{1}{8} + \frac{\square}{8}$

Orbit Oat Blend: $\frac{11}{12} = \frac{\square}{12} + \frac{1}{12} + \frac{4}{12}$

Earthberry Power: $\frac{7}{10} = \frac{\square}{10}$

Galaxy Garden Herbs: $\frac{8}{9} = \frac{1}{9} + \frac{2}{9} + \frac{\square}{9} + \frac{1}{9}$

Activation Code: _____

Luna Nova Training Task 13: Rock Around the Lock

You plan to open the core sample cabinet, you will need the correct four-digit combination. Celeste strongly prefers careful data analysis over enthusiastic guessing. Use the line to answer the questions and uncover the code.

Lunar Core Sample Measurements

Each X represents one sample.

Length of Lunar Core Samples (inches)	Number of Samples
1	1
1 $\frac{1}{4}$	4
1 $\frac{1}{2}$	2
1 $\frac{3}{4}$	4
2	0
2 $\frac{1}{4}$	3
2 $\frac{1}{2}$	3
2 $\frac{3}{4}$	2
3	2

Digit 1: What is the combined length of all the core samples that measured 1 $\frac{1}{4}$ inches?
Digit 2: How many samples measured exactly two inches?
Digit 3: How many more samples measured 2 $\frac{1}{2}$ inches than 3 inches?
Digit 4: How many core samples are shorter than 1 $\frac{3}{4}$ inches?

Combination: _____

Suggested Uses

- Morning work
- Centers
- Exit tickets
- Task cards
- Enrichment
- Test Prep

Fast Facts

- ✂ Low prep! Print & go, or click & go digital
- 🕒 Escape Time ~5-15 minutes per task
- 👤 Use individually, in pairs, or groups
- 💻 Digital version requires Google[™] accounts
- ✓ Not self-checking, not editable
- 💬 Use in-person or virtually
- 🧩 24 puzzles included - 20 standard + 4 challenge

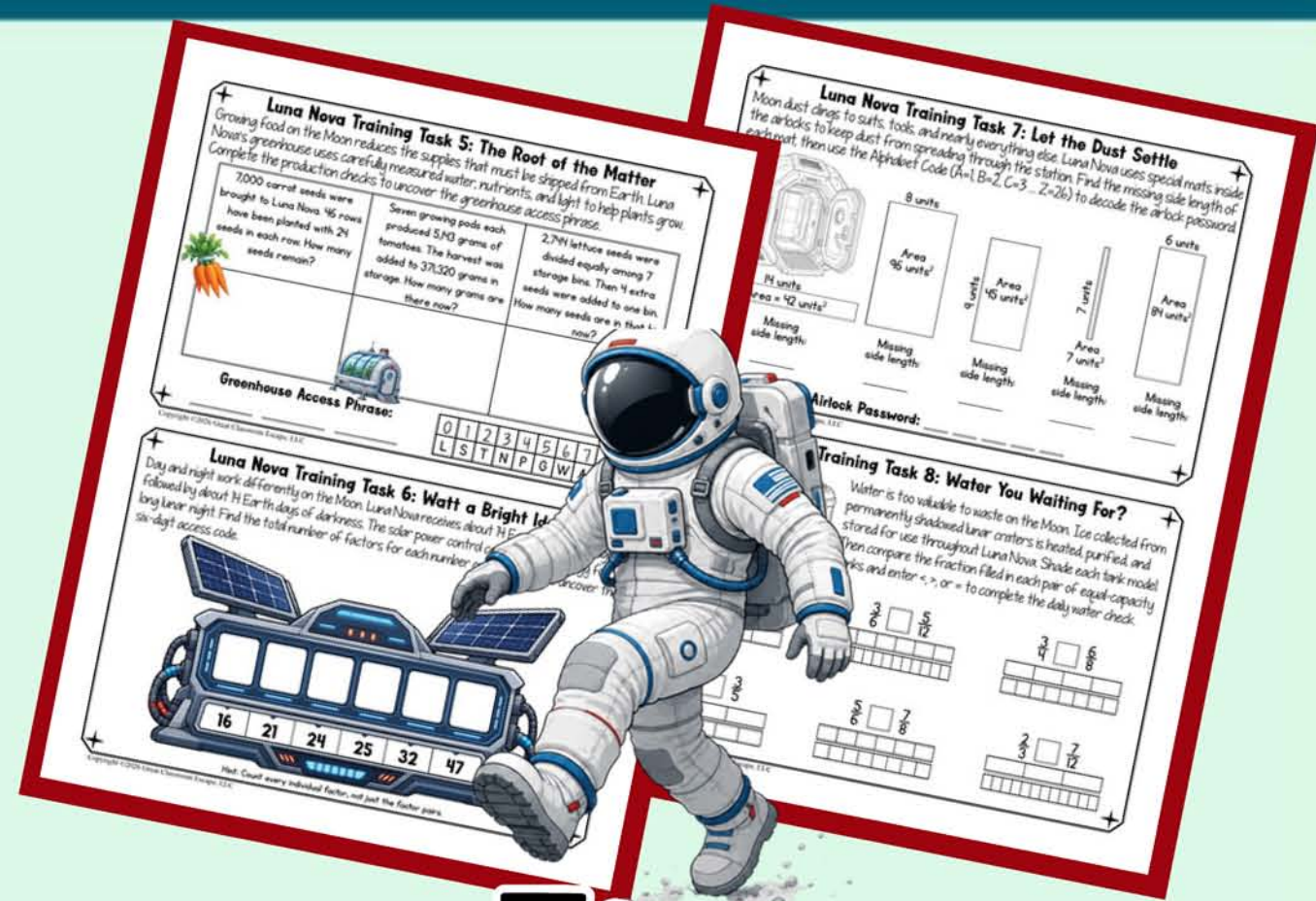
Spiral Math Review

***If a skill hasn't been taught yet, save that task for later in the year!**



What is Included?

- 20 half page escape room puzzles/task cards
- 4 full page "Expert" tasks
 - Black and white version
 - Color version
 - Google Slides™ Version *could be saved as PPT
- Recording page (optional)
- Back story page
- Quick view of standards/skills covered
- Detailed answer key
- Challenging, standards-based math review puzzles
- *This activity is NOT editable



Tips

- Print a full packet for the month of all 24 tasks OR cut pages in half and distribute one puzzle per day
- Laminate for durability to use in centers
- Allow productive struggle!

Puzzle Preview Antarctic Research Lab Theme

24 total puzzles
Color or Black & White
+ Google Slides™

Luna Nova Training Task 5: The Root of the Matter

Growing food on the Moon reduces the supplies that must be shipped from Earth. Luna Nova's greenhouse uses carefully measured water, nutrients, and light to help plants grow. Complete the production checks to uncover the greenhouse access phrase.

7,000 carrot seeds were brought to Luna Nova. 46 rows have been planted with 24 seeds in each row. How many seeds remain?	Seven growing pods each produced 5,43 grams of tomatoes. The harvest was added to 37,320 grams in storage. How many grams are there now?	2,744 lettuce seeds were divided equally among 7 storage bins. Then 4 extra seeds were added to one bin. How many seeds are in that bin now?
---	--	--

Greenhouse Access Phrase: _____

Luna Nova Training Task 6:

Day and night work differently on the Moon. Luna Nova followed by about 14 Earth days of darkness. The solar panels are inactive during the long lunar night. Find the total number of factors for six-digit access code.

Luna Nova Training Task 3: Fit for Lunar Duty

Lunar gravity makes jumps higher, sends throws farther, and makes running look suspiciously like bouncing. Convert the event records to uncover the gym access passphrase, and try to keep both boots on the floor. Use the digits in your answers to decode the passphrase.

The record distance in the Rover Relay is 9 miles. How many feet is this? (There are 5,280 feet in a mile).	The Moon Rock Toss record stands at 247 yards. How many feet is this? (There are 3 feet in a yard).	The record time for the Crater Dash is 10 minutes, 38 seconds. How many seconds is this? (There are 60 seconds in a minute).	The Lunar Long Jump record is 57 feet, 7 inches. How many inches is this? (There are 12 inches in a foot).
---	---	--	--

Passphrase: _____

Luna Nova Training Task 4:

Before every moonwalk, trainees must compare gauges use different fraction scales, equivalent readings, then unscramble the moonwalk clearance phrase.

Moonwalk Clearance Phrase: _____

Luna Nova Training Task 1: The Gravity of the Situation

Emergency wrenches are useful, but good safety procedures prevent most lunar mishaps. Complete these training checks to uncover two important station safety tips.

Safety Tip 1: A machine launches a ball 2,347 millimeters high in Luna Nova's Earth-gravity chamber. When the same launch is repeated outside on the Moon, the ball travels 6 times as high. How high will the ball travel on the Moon?

Safety Tip 2: A rover named "Rover" completes one 61 kilometer mission each day. How many kilometers does Rover travel in 65 days?

0	Unexpected
1	Report
2	Immediately
3	Don't
4	Any
5	Shortcuts
6	Rover
7	Rocket
8	Floating
9	Teach

Luna Nova Training Task 2: Crater Things Await

Every new trainee hopes to discover a crater of their own. The mapping software will open only after five crater identification numbers are matched to the scientists who discovered them. Use the clues to complete the assignments.

Use the clues to complete the grid. Put an X where a crater number does not match a scientist and an O where it does.

	Ava	Raj	Bao	Emi	Ian
645,873					
683,547					
674,385					
638,754					
657,438					

Clues

Raj and Ava were assigned the craters with the greatest and least identification numbers.

The crater number in which the digit 7 has a value of $7 \times 1,000$ was assigned to a scientist whose name begins with a consonant.

The value of the digit 7 in Bao's crater number is 10 times the value of the digit 7 in Raj's crater number.

When Ava's crater number is rounded to the nearest thousand, the digit in the thousands place matches the thousands digit in Emi's crater number.

Luna Nova Training Task 11: No Room for Error

Dr. Celeste's laboratory contains delicate lunar samples and some of the station's most precise equipment. Naturally, entry is restricted, and Dr. Celeste does not consider "I was almost right" a valid clearance code. Use the clues to place each digit correctly and unlock the laboratory door.

Dr. Celeste Nova's Laboratory
Restricted Access

- The digit 8 in 805,214 has 10 times the value of the digit 8 in the code.
- The digit 1 in 9,315 has 10 times the value of the digit 1 in the code.
- The digit 6 in the code has 10 times the value of the digit 6 in 14,568.
- The digit 4 in the code has 10 times the value of the digit 4 in 942,315.
- The digit 3 in the code has 10 times the value of the digit 3 in 23,746.
- The digit 7 in 23,746 has 10 times the value of the digit 7 in the code.

Clearance Code: _____

Luna Nova Training Task 10: The Mystery Stew

Dr. Cosmo invented the Moon Mover, a machine that mixes ingredients among several recipes. Although Dr. Celeste has never tasted it, she has heard it's a "mystery stew made of five ingredients." Find the activation code for the Moon Mover.

Lunar Lentil Mix $\frac{5}{8} = \frac{2}{8} + \frac{1}{8} + \frac{1}{8}$

Orbit Out Blend $\frac{11}{12} = \frac{1}{12} + \frac{1}{12} + \frac{4}{12}$

Activation Code: _____

Luna Nova Training Task 9: The Miner Details

Luna Nova's mining drones collect lunar soil and mineral samples without requiring anyone to dig in a spacesuit. Before a drone can begin an excavation run, its control system requires a five-letter activation word. Solve the division problems, uncover the letters, then unscramble them to send the drones digging.

	708	781	708 R 1	780	78
$4,956 \div 7$	L	U	N	A	R
$2,832 \div 4$	R	O	C	K	Y
$6,373 \div 9$	H	I	D	E	
$3,120 \div 4$	T	H	E		
$4,686 \div 6$	C	L	U		

Password: _____

Luna Nova Training Task 8: Water is Key

Water is too valuable to waste. It is stored for use throughout the station. Compare the fraction of water in the tanks and enter $<$, $>$, or $=$ to compare.

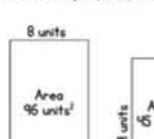
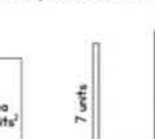
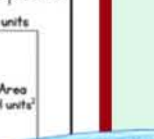
The Moon Mover is rated to lift 854 pounds of cargo on Earth. Its lunar lifting limit is 6 times its Earth limit. What is its lunar lifting limit?

The Heavy Hoist carried 98 supplies, which was 7 times as many as the Moon Mover carried. How many supplies did the Moon Mover carry?

Message: _____

Luna Nova Training Task 7: Let the Dust Settle

Moon dust clings to suits, tools, and nearly everything else. Luna Nova uses special mats inside the airlocks to keep dust from spreading through the station. Find the missing side length of each mat, then use the Alphabet Code (A=1, B=2, C=3... Z=26) to decode the airlock password.

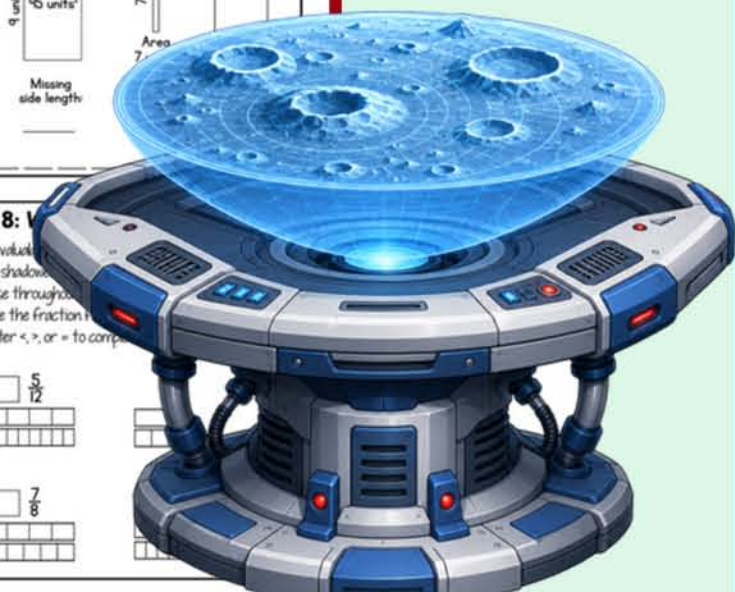
 14 units Area = 42 units ² Missing side length: _____	 8 units Area 96 units ² Missing side length: _____	 9 units Area 45 units ² Missing side length: _____	 7 units Area 84 units ² Missing side length: _____
--	---	---	---

Airlock Password: _____

Luna Nova Training Task 6:

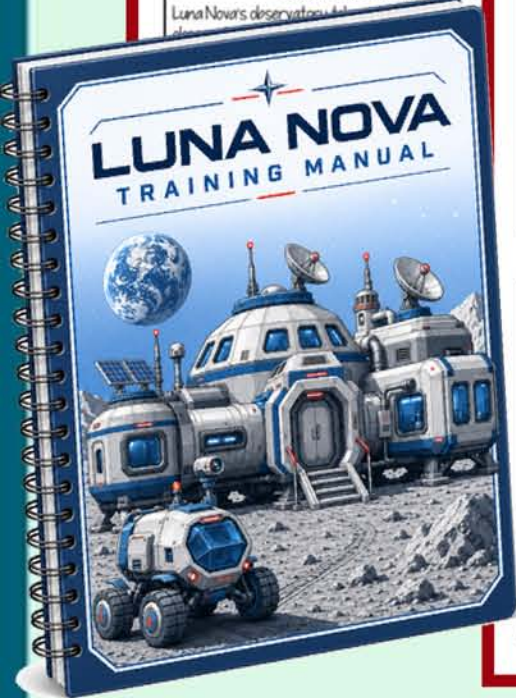
Find the total number of factors for six-digit access code.

$\frac{2}{5} \square \frac{3}{4}$	$\frac{3}{6} \square \frac{5}{12}$
$\frac{2}{3} \square \frac{3}{5}$	$\frac{5}{6} \square \frac{7}{8}$



Puzzle Preview

20 standard single
puzzle escape room
style challenges + 4
challenging bonus
puzzles



Logic puzzles
Deductive reasoning
Ciphers, codes & more

Luna Nova Training Task 15: Code You Let Me In?
Dr. Cosmo claims lunar symbols are much easier to recognize while wearing bulky gloves. Dr. Celeste is less convinced, but the Surface Operations Center still uses them. Determine the value of each symbol to find the door code. Each symbol represents a single digit.

$\text{Moon} \times \text{Moon} = 20$ $\text{Moon} - \text{Moon} = 1$ $\text{Moon} =$

$\frac{\text{Moon}}{9} + \frac{\text{Moon}}{9} = \text{Flag}$ $\frac{\text{Flag}}{10} - \frac{\text{Flag}}{10} = \text{Earth}$ $\text{Flag} =$

$\text{Moon} - \text{Moon} = \text{Earth}$ $\text{Flag} =$

Door Code:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Training Task 15: Code You Let Me In?
Dr. Cosmo claims lunar symbols are much easier to recognize while wearing bulky gloves. Dr. Celeste is less convinced, but the Surface Operations Center still uses them. Determine the value of each symbol to find the door code. Each symbol represents a single digit.

$\text{Moon} \times \text{Moon} = 20$ $\text{Moon} - \text{Moon} = 1$ $\text{Moon} =$

$\frac{\text{Moon}}{9} + \frac{\text{Moon}}{9} = \text{Flag}$ $\frac{\text{Flag}}{10} - \frac{\text{Flag}}{10} = \text{Earth}$ $\text{Flag} =$

$\text{Moon} - \text{Moon} = \text{Earth}$ $\text{Flag} =$

Door Code:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Training Task 16: A Wrench in the Plans
Luna Nova's observatory telescope must be calibrated for its targeting panel track. Solve each calculation, then arrange the answers in order to uncover the five-letter code.

$376,905 - 127,488 =$ $50 \times 12 =$

$128,947 + 120,891 =$ $12 \times 12 =$

Code:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Training Task 13: Rock Around the Lock
If you plan to open the core sample cabinet, you will need the correct four-digit combination. Dr. Celeste strongly prefers careful data analysis over enthusiastic guessing. Use the line plot to answer the questions and uncover the code.

Lunar Core Sample Measurements

*Each X represents one core sample.

Length of Lunar Core Samples (inches)

Digit 1: What is the combined length of all the core samples that measure 1 inch or 3 inches?
Digit 2: How many samples measured exactly two inches?
Digit 3: How many more samples measured $2\frac{1}{2}$ inches than 3 inches?
Digit 4: How many core samples are shorter than $1\frac{1}{2}$ inches?

Combination:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Training Task 14: Off the Beaten Path
Somewhere in Luna Nova is Dr. Cosmo's prototype lab, where clever machines, experimental gadgets, and a few questionable ideas are kept behind a secure access route. Solve each multiplication problem and follow the correct path through the maze to uncover the password.

Prototype Lab Password:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Bonus Task 3: Area You Ready?
Now that you are cleared for advanced research duties, you may access Luna Nova's restricted research vault. Entry requires a three-letter password. Use the area, perimeter, and side-length clues for each rectangle to find the missing value. Then use the Alphabet cipher to uncover the password.

A	B	C																X	Y	Z
1	2	3																24	25	26

Width = 3 units Area = 36 units² Perimeter = 16 units
Perimeter = 20 units Perimeter = 24 units Length = 5 units
Area = _____ units² Length = _____ units Area = _____ units²

Vault Password:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Bonus Task 4: Return-Request Code
When your work at Luna Nova is complete, return-request code is protected with Morse. Plug challenging calculations. Decode carefully, solve both request that will send you home.

The shuttle carries 7,396 pounds of cargo divided equally among 4 cargo holds. Its fuel weighs 1,234 times as much as the cargo in one hold. What is the combined weight of all of the cargo and fuel?

Return-Request Code:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Bonus Task 1: Making Connections
Now that you are cleared for duty, it's time for your first official surface assignment. Luna Nova's researchers are installing new scientific instruments, each with a specific data cable. Use the clues to match each researcher, instrument, and cable length. *1 yard = 3 feet, 1 foot = 12 inches

Researcher	Instrument	Cable Length
Dr. Ray	Dust Sensor	2 yards
Dr. Bob	Gravity Meter	5 feet 4 inches
Dr. Eric	Lunar Camera	75 inches
Dr. Tan	Sun Tracker	6 feet 1 inch
Dr. Luna	Spectrometer	68 inches

Clues

- Ray's lunar camera requires the longest cable.
- The gravity meter and spectrometer use the shortest two cables.
- Ava's cable is 3 inches shorter than Ray's.

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Bonus Task 2: Sector Number
Trained recruits may now assist with Luna Nova's next research sector, but Dr. Cosmo has a few rules from the map. Use the clues to reconstruct the programmed sector number.

- The number has six digits, and no digit is 0.
- The digit 1 has 10 times the value of the digit 2.
- The number rounds down when rounded to the nearest ten.
- The number rounds up when rounded to the nearest hundred.
- The thousands digit is a multiple of 5.
- The two-digit number formed by the tens and hundreds digits is a multiple of 10.
- The two-digit number formed by the tens and hundreds digits is a multiple of 10.

Sector Number:

Copyright © 2024 Great Classroom Escape, LLC

Luna Nova Training Task 19: A Wrench in the Plans
Dr. Cosmo believes every important station system deserves its own emergency wrench. Dr. Celeste believes those wrenches should be stored in a locked cabinet. Use the clues to determine the combination and unlock the emergency wrench locker.

Number 1

- It is less than 50.
- It is a multiple of 7.
- It has more than four factors.
- The ones digit is less than the tens digit.

Number 2

- It is prime.
- It is greater than 20 but less than 40.
- It rounds to 30 when rounded to the nearest ten.
- The ones digit is a multiple of 3.

Number 3

- It is composite.
- It is between 45 and 70.
- It is a multiple of 8.
- It is not a multiple of 3.
- It has more than seven factors.

Combination: - -

Copyright © 2024 Great Classroom Escape, LLC

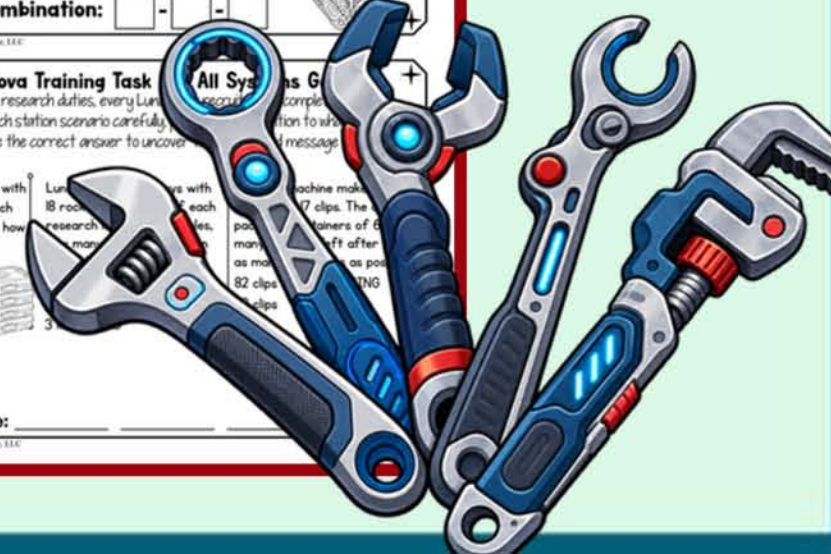
Luna Nova Training Task 20: All Systems Go
Before beginning regular research duties, every Luna Nova researcher must complete a readiness check. Solve each station scenario carefully, then arrange the answers in order to uncover the message.

A shipment has 38 crates with 24 meal packs each. If each storage bin holds 7 packs, how many bins are needed?

130 bins READY
91 bins CLEARED
2 bins PREPARED

Message:

Copyright © 2024 Great Classroom Escape, LLC



Optional Extras

Also included: Back Story & Success Pages

Visual Models

Luna Nova Cipher Tools

Morse Code

A	• • • • •	N	• • • • •	1	• • • • • • • • • •
B	• • • • •	O	• • • • • • • • • •	2	• • • • • • • • • •
C	• • • • •	P	• • • • • • • • • •	3	• • • • • • • • • •
D	• • • • •	Q	• • • • • • • • • •	4	• • • • • • • • • •
E	• • • • •	R	• • • • • • • • • •	5	• • • • • • • • • •
F	• • • • •	S	• • • • • • • • • •	6	• • • • • • • • • •
G	• • • • •	T	• • • • • • • • • •	7	• • • • • • • • • •
H	• • • • •	U	• • • • • • • • • •	8	• • • • • • • • • •
I	• • • • •	V	• • • • • • • • • •	9	• • • • • • • • • •
J	• • • • •	W	• • • • • • • • • •	0	• • • • • • • • • •
K	• • • • •	X	• • • • • • • • • •		
L	• • • • •	Y	• • • • • • • • • •		
M	• • • • •	Z	• • • • • • • • • •		

Morse code is used to send messages through sound or light. Each letter and number has a unique pattern of short and long sounds or flashes. For example, the letter "A" is represented by a short sound followed by a long sound, while the letter "B" is represented by a long sound followed by three short sounds (dots).

— / : / — — — — — / — — — — — / — .
— . / — — — — — / . — — — — — / : / . — / — / . . .

Alphabet Cipher A = 1, B = 2, C = 3... Z = 26

[illegible]

Pigpen Cipher

Decoding a Pigpen Mes

Examine the key. Look at the shapes around each letter. The letter T has . The letter N  has a box with a dot. The letter C has this shape  around it.  may come in handy for some tasks.

Atbash Cipher

The Atbash cipher, or Mirror Cipher, uses a backward alphabet. Each letter is matched with its opposite letter in the alphabet: A = Z, B = Y, C = X, and so on. Use the cipher key to decipher the message. XZM BLF WVXLWV GSRH?

↓	A	B	C	D	E	F	G	H	I	J	K	L	M	↓
↑	Z	Y	X	W	V	U	T	S	R	Q	P	O	N	↑

Cipher Tools

Luna Nova Fraction Tools

[illegible]

Your Work Here Is Done!

Well done, researchers!

Your work at Luna Nova is officially complete. You arrived as new recruit, proved that you could think carefully, solve problems, follow instructions, and overcome the unexpected challenges that come with working on the Moon.

Research at Luna Nova requires precision, patience, and good judgment. A small mistake can send a rover in the wrong direction, a telescope toward the wrong target, or one of Dr. Cosmo's inventions into what he calls "an unexpected testing phase." You approached every assignment like a true member of the research team.



You earned your clearance, took on real research duties, and are ready for the journey home.

Thank you for helping keep Luna Nova organized, prepared,
for whatever discovery comes next.

With confidence from the Moon,

Dr. Celeste Nova



Greetings, newest lunar recruits!

I am Dr. Cosmo Nova, engineer, inventor, and co-director of Luna Nova Research Station. I am also the person most likely to know why a machine is making a strange noise. Of course, knowing why and convincing it to stop are two different scientific skills.

My sister, Dr. Celeste Nova, is the station's lead researcher. She believes every experiment should follow a precise plan. I believe every precise plan should include an emergency wrench.

Together, we oversee the laboratories, observatory, rover bays, greenhouse, surface equipment, and the many other systems that keep the station operating. Most work exactly as intended. The others were designed by me.

As the newest arrivals at Luna Nova, you must complete your station training before beginning regular research duties. Your training manual contains tasks that will introduce you to the station's equipment and procedures. Read each entry carefully. Solve the problems, follow the clues, and record the information you uncover.

A few things to remember:

- Follow Dr. Celeste's instructions exactly.
- Follow my instructions enthusiastically.
- Never press a flashing button simply because it looks interesting.
- Dropped tools still fall with low gravity. They simply take their time.

Complete your training, and you will be cleared to take on real missions throughout Luna Nova Research Station.

Welcome to the Moon, recruits. You  begins now



Math Standards Included

- Puzzle 1: 4.NBT.B.5 Multi-digit multiplication word problems
- Puzzle 2: 4.NBT.A.1-3 Place value, comparison & rounding
- Puzzle 3: 4.MD.A.1 Convert measurements within one system
- Puzzle 4: 4.NF.A.1 Recognize equivalent fractions
- Puzzle 5: 4.OA.A.3, 4.NBT.B.4-6 Multi-step word problems
- Puzzle 6: 4.OA.B.4 Factors of numbers less than 100
- Puzzle 7: 4.MD.A.3 Find unknown rectangle side lengths from area
- Puzzle 8: 4.NF.A.2 Compare fractions using models and benchmarks
- Puzzle 9: 4.NBT.B.6 Divide up to four digits by one digit
- Puzzle 10: 4.OA.A.1-2 Interpret multiplicative comparison
- Puzzle 11: 4.NBT.A.1 Ten-times place value relationships
- Puzzle 12: 4.NF.B.3b Decomposing fractions into sums with like denominators
- Puzzle 13: 3.MD.B.4, intro to 4.MD.B.4 Fractional line plot
- Puzzle 14: 4.NBT.B.5 Multiply two two-digit numbers
- Puzzle 15: 4.NF.B.3a Add & subtract fractions with like denominators
- Puzzle 16: 4.NBT.B.4, 4.NBT.A.2 Add, subtract & compare multi-digit numbers
- Puzzle 17: 4.NBT.A.3 Round, estimate, add & subtract multi-digit whole numbers
- Puzzle 18: 4.OA.C.5 Numerical and shape patterns
- Puzzle 19: 4.OA.B.4 Prime, composite, factors & multiples
- Puzzle 20: 4.OA.A.3, 4.NBT.B.5-6 Multi-step word problems involving interpreting remainders
- Bonus Puzzle 1: 4.MD.A.1 Convert & compare measurements
- Bonus Puzzle 2: 4.NBT.A.1, 4.NBT.A.3, 4.OA.B.4 Place value, rounding & multiples
- Bonus Puzzle 3: 4.MD.A.3 Area & perimeter challenge
- Bonus Puzzle 4: 4.OA.A.3, 4.NBT.B.4-6 Challenging multi-step word problems

