

MATH ADVENTURE KIT

Space Base Alpha

Script &
Station Details
for the

Mineral Mine



STATION – MINERAL MINE

CHARACTERS

Receptionist – Greets teams outside; controls traffic flow

Head Surveyor – Guides teams through the challenge

Alien creature – Looks harmless, but goes crazy for candy

Departure – Makes sure exiting teams have everything they need

BACK STORY

The star base has arrived at Mars. Teams have been asked to survey an unexplored area of the planet surface, looking for valuable Martian minerals.

Each team will be provided with scanning technology. They must work together with their scanners to locate a hidden cache of minerals. A handy technique would be triangulation, using the readings of multiple scanners.

Unexpectedly, the team also finds some apparently friendly native creatures. What are they doing here, and what do they want?

LOCATION

A school library or classroom.

For larger events, a library can handle several concurrent teams. Or multiple neighboring classrooms should be utilized, running parallel activities to alleviate bottlenecks. One Alien and one Surveyor per room or per simultaneous team.

The receptionist and departure helper stay in the hallway. They support all parallel rooms.

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SCRIPT

Receptionist: Hello, Welcome to Mars! What's your team name?

Team: (Name)

Receptionist: Your assignment today will be to scan the environment, looking for minerals. Do you have any good ideas for using your scanners?

(Confirm team has solved the puzzle for this station, and has the answer: TRIANGULATORS.)

Surveyor: Oh, good! You're just in time. This job can't be done alone. We need a team, so we can spread out. But first you're going to need to familiarize yourself with these scanners. You each get one, but I'll need them back when we're done.

(Gives each team member a different scanner, and tells them each the scanner name.

Example: yours is called 'flower', this is 'windmill', this is 'globe', and this last one is 'jellyfish')

Go ahead and turn them on.

Team: *(Turns on their spinning wands.*

For some reason, many kids immediately want to trade. For brevity, we recommend no trading.)

Surveyor: I want you to spread out. Periodically, my computer *(holds up cell phone)* will report back which of your four scanners is closest to the minerals.

At that point I want the closest person to freeze, to mark that position. Then the rest of you start scanning the area closer to them.

After that, my computer will take another reading. This way, we'll get closer and closer, until we find those minerals.

Ready to start?

Team: *(Goes into the darkened room, where they quickly run into an alien critter)*

Critter: "Meep!"

Surveyor: What's this? A Martian? How cool is that?! Do you think it's friendly?

Critter: "Meep!"

(nuzzles the surveyor in a harmless, friendly way).

Surveyor: Ok, this little guy doesn't seem to be any trouble. Let's start that search.

Team: *(Spreads out, waving their scanner wands)*

Surveyor: *(Waits until students are spread apart, and one is nearer the hidden cache than the others)*

Ok everyone, hold still!

(Pretends to read from cell phone)

This says, the 'windmill' is closest. (or, whichever student/scanner actually is)

Windmill, please stay where you are. The rest of you, move in Windmill's direction.

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SCRIPT (CONTINUED)

Critter: *(Follows students around, but mostly stays out of the team's way)*
"Meep!"

Team: *(Redirects their search to a narrower area. The windmill should stay where they were)*

Surveyor: *(Waits until another student has moved a bit closer to the hidden cache)*
Ok everyone, hold still again! *(Pretends to read from cell phone)*
Now it says the 'jellyfish' is closest. *(or whichever)*
Jellyfish, please stay where you are. The rest of you, including Windmill, look near Jellyfish.

Team: *(Repeats this pattern, at ever shrinking scale, until they uncover the M&Ms).*

Surveyor: Bravo, you found some minerals! Each of you should take one. And I get one too.

Critter: *(Starts to be especially friendly to the surveyor)* Meep! Meep! Meep!

Surveyor: I think this poor little guy is hungry. Should we give him one?
(Open their packet, and offer one M&M to the critter)

Critter: *(Eats the M&M. Eyes go wide. Personality stops being friendly, and gets much more aggressive)*
MEEP! MEEP! MEEP!

Surveyor: Oh no, I shouldn't have done that. Let's get out of here!!
(Encourages the kids to hurry back out the room's exit)

Departure: Oh, hello team! Nice work with the minerals. Was there any trouble?
I'll need to collect your scanners, please.
A message came from the Star Base. Something happened in the Reactor area. Have you been able to help them yet?

Team: *answers yes if their first puzzle was the Reactor Core. Otherwise, they answer no.*

Departure: *(If no...)* Well then, you'll need this packet.
(hands them their next puzzle).
Good luck!
(If yes, they've already done the Reactor...) Then you're done!
Go find the Base Commander!

ROOM RESET

Critter: *Hides a new cache of M&Ms in the same location.*

Surveyor: *Gathers scanners, to hand out to the next team.*

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INCOMING PUZZLE

Before arriving at this station, each team will solve a math puzzle that utilizes Braille. From the title, they'll guess that they must find minerals, but they aren't as likely to guess "Mars Minerals" are M&Ms.

Team's instructions before arriving – "Your team has been selected to survey a new landing site. What exotic discoveries await? How will you find them?"

Team's puzzle answer – TRIANGULATORS. That's the fancy name for the scanners. Most kids won't have any skill at *triangulation*, but you're welcome to talk them through it, if they're interested.

DEPARTURE

As teams leave, they should have 2 things:

- Single-serving packets of M&Ms (1 per student)
- The outgoing puzzle – Reactor Core
- ⊗ They should NOT take their scanner with them

SUPPLY LIST

- A bulk supply of M&M packets. One per student, with plenty of spares for the surveyors and for any little siblings that come along for the ride
- Light up wands (a.k.a. mineral scanners)
- Outgoing puzzle – Reactor Core
- Hallway signs saying – Mineral Mining
- Masking tape – for signs
- Thick black marker – for drawing arrows on signs
- Team list – listing each team, and their level expected level
- Pencil – to check teams off as they arrive
- Water – actors talk a lot, and get thirsty

COSTUME SUGGESTIONS

The receptionist and departure helper can wear whatever they like.

The surveyor could dress up with work gloves, or other mining attire. A head lamp, for example.

The critter should look alien, but cute. For example, some bobbly antennae.

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STATION SETUP

- Take a picture with your cell phone of both the classroom area you intend to use, and the hallway outside. This will help you return any moved furniture back where you found it.
- Pick one hiding place in the room for each surveyor/critter pair that works the room. The surveyor will come back to this place over and over, but other surveyors can coexist in the room, looking for different hiding spots. Make sure those spots are far apart.
- Place a reception table in the hall, at least 10 feet from the classroom door.
- Place the supply of outgoing puzzles on the table, along with the team list.
- Hang up signs
 - Tape one of the hallway signs to the front of the reception table, or on a wall above it, so arriving teams know they're in the right place.
 - Tape the remaining signs along the route from the solving area to this station. Use a black marker to add arrows for direction.
 - The first sign should be inside the solving area, at the exit, where teams inside can see it.
 - Where logical, group with other station signs for easier visibility.
 - There's no need to mark the classrooms themselves. The whole purpose of the signs is to help teams find their way from the solving area to your reception table.

LAYOUT TIPS

Make sure the reception table is the first thing incoming teams will see.

Leave a sizable buffer between the reception table and the classrooms. At least 10 feet, but farther is better. This way, teams waiting outside won't crowd the actors, who can then talk to one team at a time outside the station room. Also, this means that teams that spill out of the room giggling won't immediately run into the next team in line.

Try to block the view of the station activity from teams waiting in line, so as not to spoil any surprises.

If you have room, and enough staff for separate receptionist and departure helpers, give them each their own desk, and create a loop route for teams to go through. The receptionist table gets the team list. The departure table is closer to the classroom, and gets the outgoing puzzles. However, if you are understaffed, the receptionist and departure assistant jobs can be merged into one person at one desk.

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TEAM MANAGEMENT AND PARALLEL ROOMS

In order for the evening to flow smoothly, you will want each team to complete their experience at this station in 4-5 minutes. One surveyor/critter team can reasonably handle 12-16 teams over the course of the event. After that, you'll want to parallelize.

If you use a large room, such as a library, you can support multiple surveyors/critters in a single space. You just need to spread apart the hidden caches, so teams don't find the wrong ones.

If you only have small rooms, consider using more than one.

Even if you think you have plenty of staff for the event size, don't be surprised if there is an initial wave of teams, shortly after the event starts. That is because the teams initially all start at the same time, and many will finish their first puzzles in a race. After the first puzzle, team times tend to spread out, and the rush is done.

If you are short-handed, or don't have access to another room, or just want to give yourself options for the expected initial rush, you could theoretically have two teams active in a single room, where one surveyor is helping them look for two separate caches. It will likely be more chaotic, but it should work. Just give each team a separate work area, away from the other.

It's important not to let too many teams wait outside in line. If you ever get 2 or more teams waiting, find a way to speed up. You might give clearer clues from the scanners/computer. For example, "the computer says there are minerals about 3 feet away from the 'windmill', low to the ground."

FINAL TIPS

You are the guardians of this room. Make sure nothing wanders off, any litter or messes are cleaned up, and everything gets put back where it was!

Do not shut down this station until the event lead or the solving station lead confirm that no more teams are en route. If you have parallel rooms, and are reasonably sure you've seen all the teams, it is ok to shut down all but one room, until you hear final confirmation.

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ANECDOTES FROM PAST EVENTS

Over the years, we've seen a number of things go sideways. If you have some spare time while you wait for the first team to arrive, read on. You never know when one will happen to your station.

Unsolved puzzles

Some teams show up at the station with a garbled answer. If they're close, feel free to help them find the real answer. Alternatively, point out the QR code in the bottom corner of the answer page -- it links to a web page that can show coaches how to get the correct answer. More rarely, a team that doesn't understand how the adventure works will show up without even trying to solve the puzzle. They likely think they were supposed to solve it together with you. These teams should be sent back to the cafeteria to work on the puzzle -- that's half the adventure!

Wrong station

Signs from the cafeteria to the stations may not be as clear as you thought. Eager teams will run to the first station that looks like a candidate. So double check that their answer page matches your station. If they should be elsewhere, help them find it. Then check your signs!!

One more team

By the end time of the adventure, your actors are probably exhausted, and eager to pack up. But all too often, there's one more team you didn't account for. If they show up after the station has closed down, all their math work will seem in vain. So double check before you close up -- send a runner to the cafeteria to confirm.

The mile-long line

Beware long queues of teams waiting to experience your station. Not only is waiting in line the least fun part of the evening, but antsy kids can have a hard time waiting patiently. Be creative to clear out queues as soon as they occur. Take two teams through a station at a time. Slim down the actor's lines. Give hints. Anything.

Teenagers

Teenagers are a fantastic second source of actors, volunteers, and even coaches. But beware leaving groups of them unsupervised in a classroom. Groups of teens with spare time between adventures can get unfortunate ideas for pranking their old elementary teachers and younger siblings.

Scared little ones

The youngest adventurers can be slow to catch on to the spirit of your station. If your station calls for bravery, they may be terrified. If it calls for comedy, the jokes may go completely over their head. Feel free to tone down the drama, talk through the jokes, or just feed them lines.

Tag-along siblings

Math Adventures are great family and community events. In order for parents to be able to coach and act, it's nice to also let them bring any pre-school age little siblings along for the ride. Those kids won't be interested in the math puzzles, but if you can loop them into the theatrics, do so. And if nothing else, make sure they get any token giveaways that their older siblings get.

Hidden supplies

Make sure everyone working a station knows where the stash of extra supplies are. This is all the more important when a station is split across two or more parallel rooms. Sometimes one actor thinks the supplies are all used up, when in fact there's a second stash in another box. Review all supplies at the start, including how much to give to each team that comes through, and how many total teams are expected.

No-show actors

If your station is really short-handed, you can go to the cafeteria, and draft a spare coach into acting service!

Moved furniture

Teachers care a lot about their classroom and its layout. Do everything you can to return everything to where you found it.

Make math fun for your school!

Math Adventure

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