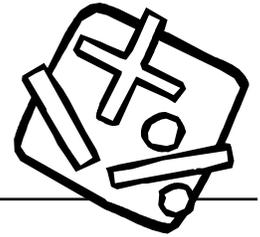# Alien Encounter

Use multiplication to help the aliens find out how much fuel they need to get their spacecrafts home.

What you need
10 alien figures (or pictures of aliens)
50 plastic "crystals" (any type of counter will do)
Paper
Pencils

What to do
1. You are an alien investigator that has discovered aliens in the park.
2. You realize that the aliens have come to earth in search of an energy source to power their spacecrafts.
3. The energy they need comes from crystals that grow in the caves near the park.
4. The first alien arrives in his spacecraft.
5. He needs the power of four (4) crystals to get his spacecraft back to his home planet Vela.
6. Then, a second alien arrives in another spacecraft.
7. If each alien needs four crystals, how many total crystals will they need to get both of them back?
8. Imagine that three (3) more aliens arrive, each in their own spacecraft.
9. How many total crystals will all five (5) aliens need so they can all get back to Vela?
10. Then, ten (10) more aliens arrive in the park after the first five aliens. How many crystals will they need?

What to ask
• Do you notice a pattern?
• Can you create a formula that you can use as a short cut to find the answer for any number of aliens?

Did you know?
Solving this problem using repeated addition or skip counting allows children to relate addition to multiplication. Making number sentences about what they did helps them relate their problem solving strategy to symbols.

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What's next?

- Imagine that now there are 32 aliens looking for crystals in the caves. If they each need 4 crystals, how many will they need to find? Can you use a short-cut formula to find the answer?
- What if each spacecraft needs 5 crystals instead of 4? How many crystals would 32 aliens need? How would your short-cut formula change?
- Imagine that two aliens can travel in each spacecraft, and there are 32 aliens. If each spacecraft needs 4 crystals to get back to Vela, how many crystals will the aliens need? What if each spacecraft needs 5 crystals?

To learn more

Amanda Bean's Amazing Dream: A Mathematical Story

by Cindy Neuschwander

Known to her friends as Bean Counter, young Amanda Bean happily counts "anything and everything" by ones, twos, fives, and tens. Although her teacher tells her that learning multiplication is important, Amanda remains unconvinced until a strange dream presents her with arithmetic challenges that overwhelm her counting skills.

How it helps with school

Texas Essential Knowledge and Skills (TEKS) Standards
Number, Operations, and Quantitative Reasoning: 3.3, 3.4A-B; 4.3A, 4.4B-C; 5.3A-B
Patterns, Relationships and Algebraic Thinking: 3.6A-B, 3.7; 4.6A, 4.7; 5.5B, 5.6
Underlying Processes and Mathematical Tools: 3.15D, 3.16, 3.17; 4.14D, 4.15, 4.16; 5.14D, 5.15, 5.16

National Council of Teachers of Mathematics (NCTM) Standards
Number and Operations, Algebra, Problem Solving, Representation

Alien Encounter

Number of Aliens	Number of Crystals
0	0
1	4
2	