

Challenge Cards

## Stick Puzzlers

**Level:** Grade 4–12 • **Topic:** Game Design, Computational Thinking

*If you are looking for an accessible online version of this content, please visit the [Pinnguaq website](https://pinnguaq.com/learn/stick-puzzlers) (link: <https://pinnguaq.com/learn/stick-puzzlers>).*

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### About the Author

#### Becky Wright

Becky is an educator and the Lead Digital Skills teacher at the Lindsay Pinnguaq Makerspace. She is passionate about developing an intrinsic motivation for learning within every student she meets. Becky graduated from the University of the Pacific with a Bachelors of Arts in Liberal Studies with a Major in Human Development and Special Education, and a Masters of Arts Degree in Curriculum and Instruction. Prior to beginning her role as an educator for Pinnguaq, she taught grades sixth through eighth in a Montessori school structure. She also spent five years teaching a range of grades from preschool to eighth grade in Bangkok.



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### Overview

These cards provide learners with logic and math visual problems that are fun and engaging. Using sticks, learners will have the opportunity to use their critical thinking and problem solving skills to solve the visual brain teasers. These challenges require you to think outside the box and they are difficult to solve, but have a seemingly simple solution once resolved. Cards can be downloaded and printed for learners to use independently.

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## Cards

# PINNGUAQ

## STICK PUZZLER

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#1

Move one stick to make the equation true!

Rules: All sticks must be used. You cannot move any sticks from, or to, the equal sign or right of the equal sign (the answer of four sticks must stay the same).

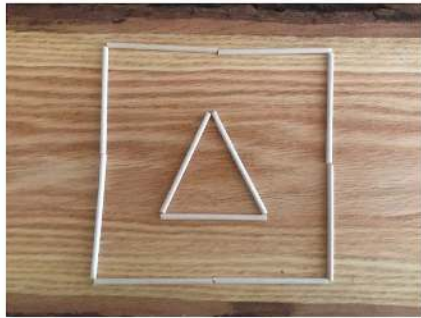
**Challenge:** Move one stick to make the equation true!

**Rules:** All sticks must be used. You cannot move any sticks from, or to, the equal sign or right of the equal sign (the answer of 4 sticks must stay the same).



#2

# PINNGUAQ STICK PUZZLER



**Move three sticks so the square is inside the triangle!**

Rules: All sticks must be used.

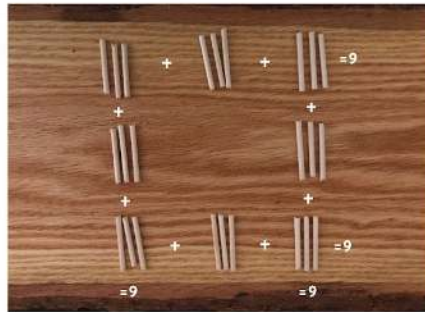
**Challenge:** Move three sticks so the square is inside the triangle.

**Rules:** All sticks must be used.



#3

# PINNGUAQ STICK PUZZLER



←  
Hint: you can move  
around the sticks  
from one group of  
three to another

## Add four more sticks!

**Rules:** Each column and row must have three groups that equal a sum of 9 sticks. You cannot add sticks to the middle or change the overall shape of the square.

**Challenge:** Add four more sticks!

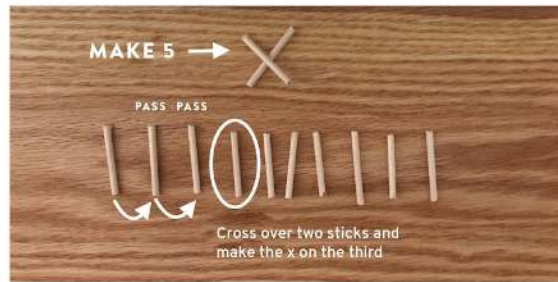
**Rules:** Each column and row must have three groups that equal a sum of 9 sticks. You cannot add sticks to the middle. You cannot change the overall shape of the square.

**Hint:** You can move around the sticks from one group of three to another.



#4

# PINNGUAQ STICK PUZZLER



## Combine the 10 sticks into 5 letter Xs!

**Rules:** Each X must be made by combining two sticks. You must pass a stick over the two sticks that are beside it either to the right or left and then make the X on the third stick. You cannot skip over sticks.

**Challenge:** Combine the 10 sticks into 5 letter Xs.

**Rules:** Each X must be made by combining two sticks. You must pass a stick over the two sticks that are beside it either to the right or left and then make the X on the third stick. You cannot skip over sticks.

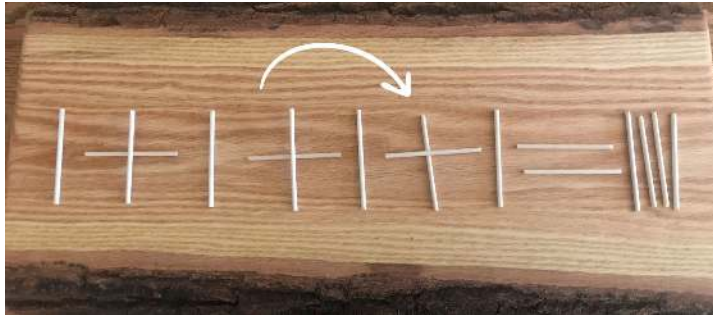
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**ANSWERS ON NEXT PAGE**

We want to see the awesome things you're creating! Take a photo or video and share your work with us by emailing [media@pinnguaq.com](mailto:media@pinnguaq.com) or tagging @pinnguaq on [Facebook](#), [Twitter](#), or [Instagram](#). Don't forget to include the hashtag #LearnWithPinnguaq!

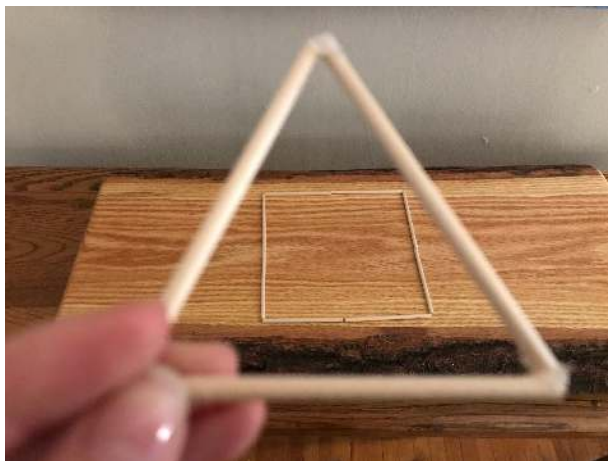
## Answers

### Challenge #1



Move a stick from the group of sticks that make up 2 and make a plus sign with the middle stick in the group of sticks that make three. You then turn the equations from  $1+2+3=4$  into  $1+1+1=4$  by only moving 1 stick.

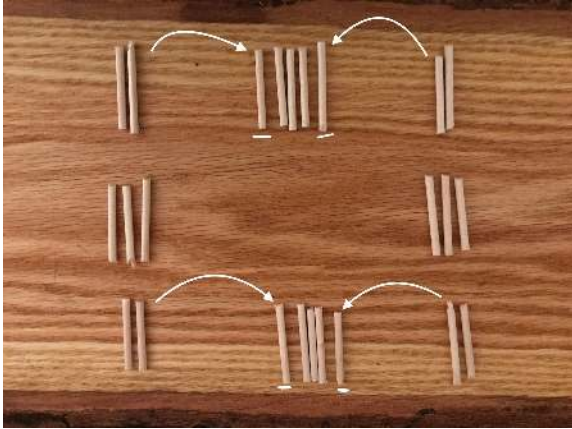
### Challenge #2



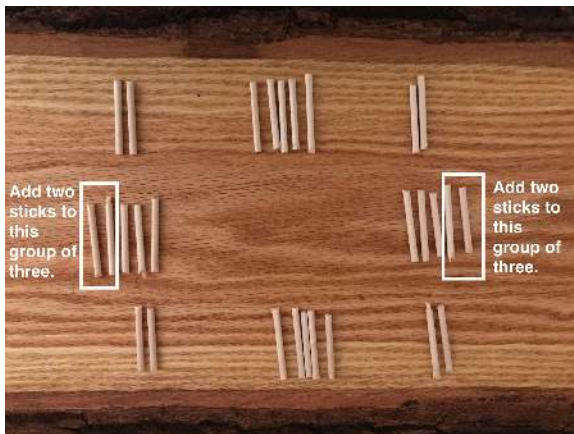
Pick up the three sticks that make the triangle and hold them close to your face. Look through the triangle at the square. You've now moved three sticks to place the square inside the triangle!

### Challenge #3

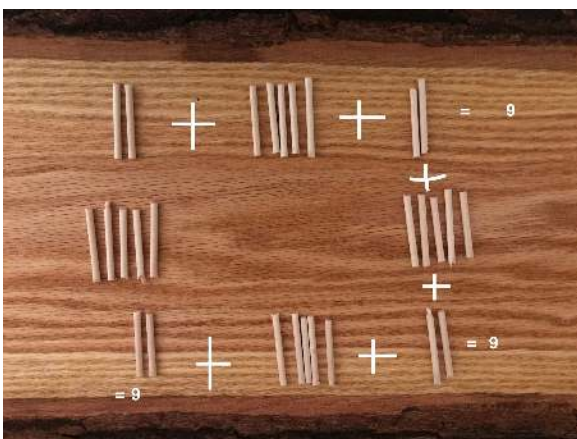
Move one stick from each group of three at each corner of the top and bottom rows into the group of three in the middle of the top and bottom row. Now your top and bottom rows will add up to nine, but the left and right columns will only add up to seven.



Now it's time to add in your four sticks. Add two sticks to each of the middle groups of three in the left and right columns.

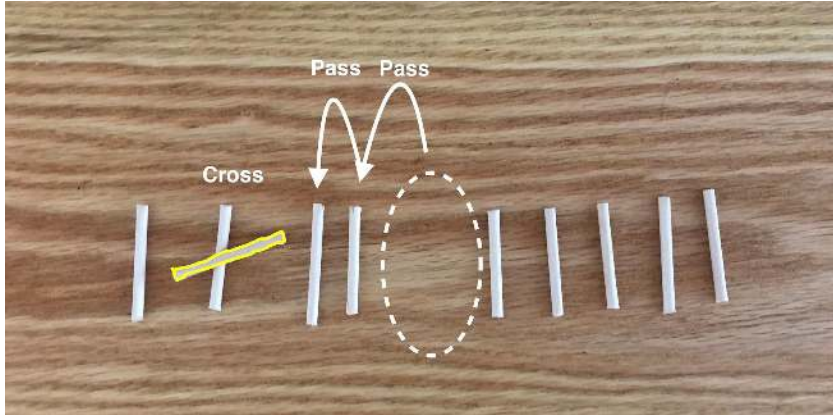


Now that you've added four more sticks, each column and row have three groups that equal a sum of 9 sticks.

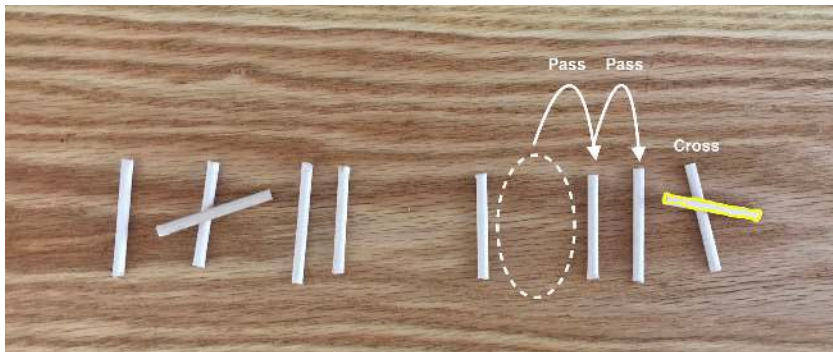


## Challenge #4

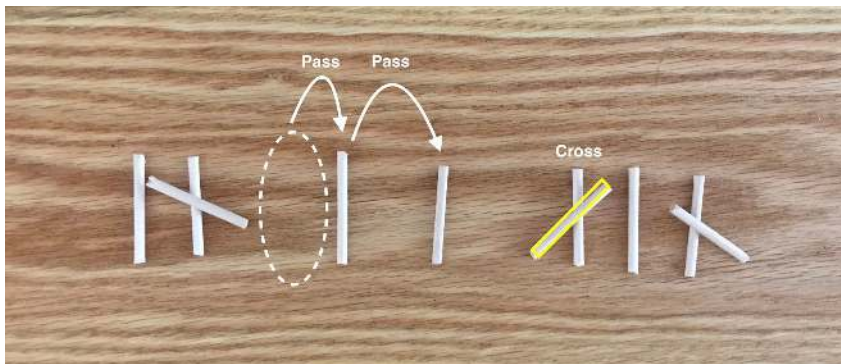
1. To make your first X, start with the fifth stick from the left and pass it over the two sticks on its left. Cross on the third stick.



2. Now to make the second X, take the fourth stick in from the right and pass it over the two sticks to its right. Cross with the third stick.

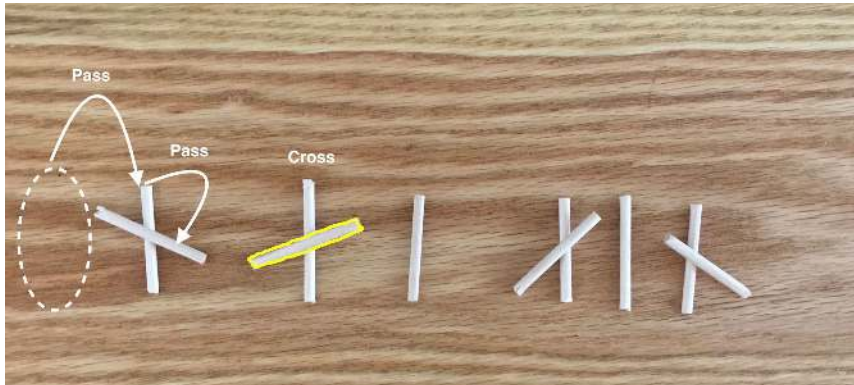


3. To make your third X, take the stick to the very right of the first cross (on the left) and pass it over the two sticks to the right. Cross on the third stick.

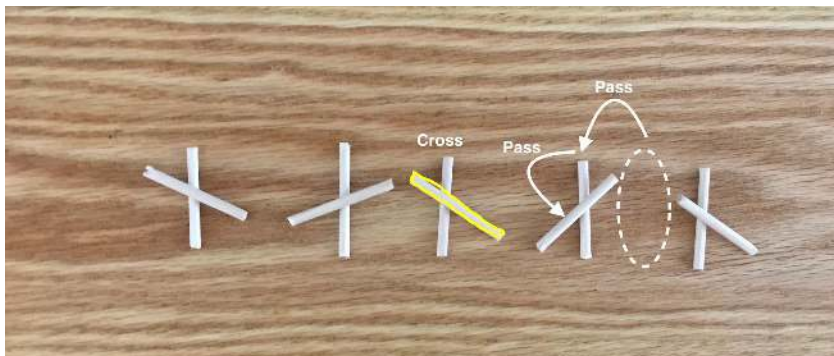




- Now it's time to make the fourth X! Take the very first stick on the far left and pass it over the two sticks in the cross to the right. Cross with the third stick.



- Finally, take the free stick on the very right and pass it over the two sticks that make up the X to the left. Cross on the third stick to make your last X.



Congratulations! You've now combined the 10 sticks into 5 letter Xs!