Welcome to the Feb 2023 Clyde Hill Math Challenge Solutions!

We wish to thank everyone for participating! We had wonderful turnout and saw lots of effort and fun! Ya'll did great! Amazing showcase of our growth mindset!

Before going to the solutions, we wish to extend many thank yous to everyone who helped get the Math Challenge off the ground and into as many languages as possible!

Thank you Ms Decostanza!

Thank you Shera Myers!

Thank you Principal García de León and Vice Principal Hook!

Thank you Lizie Piazza!

Thank you Charu Jeevanandam and Rajesh Sugumaran!

Thank you Shoba Girish!

Thank you Debyani Ghosh!

Thank you Kathy Bessler!

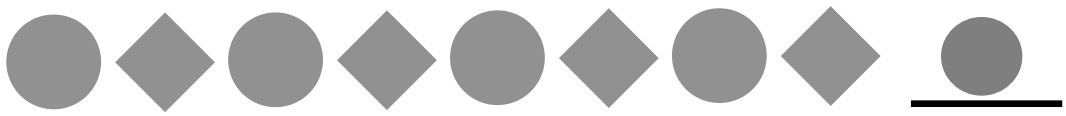
Thank you Bo Su!

Thank you again everyone!

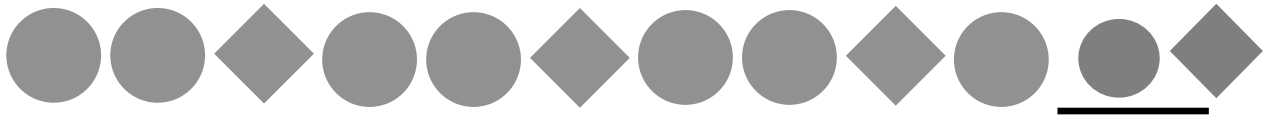
Jennie Cochran-Chinn and Clyde Hill PTA

Patterns

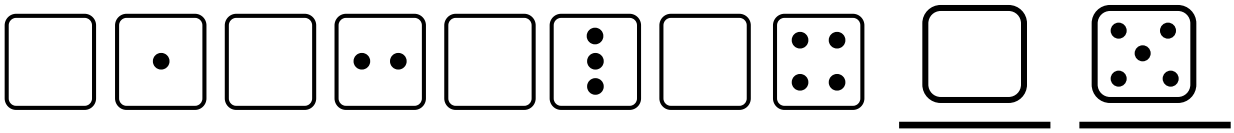
Look for a pattern in the shapes below and tell us – what comes next?



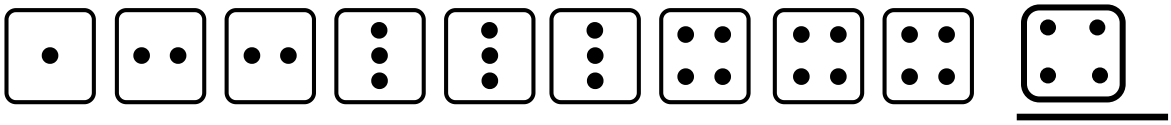
Pattern: Circle diamond



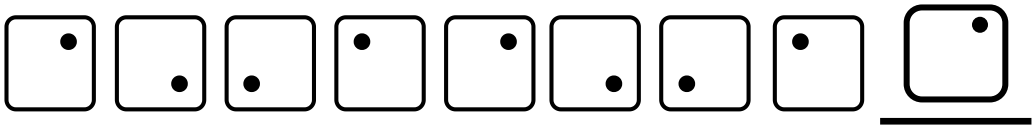
Pattern: circle circle diamond



Pattern: blank every other; increase every other:
0, 1, 0, 2, 0, 3, 0, 4



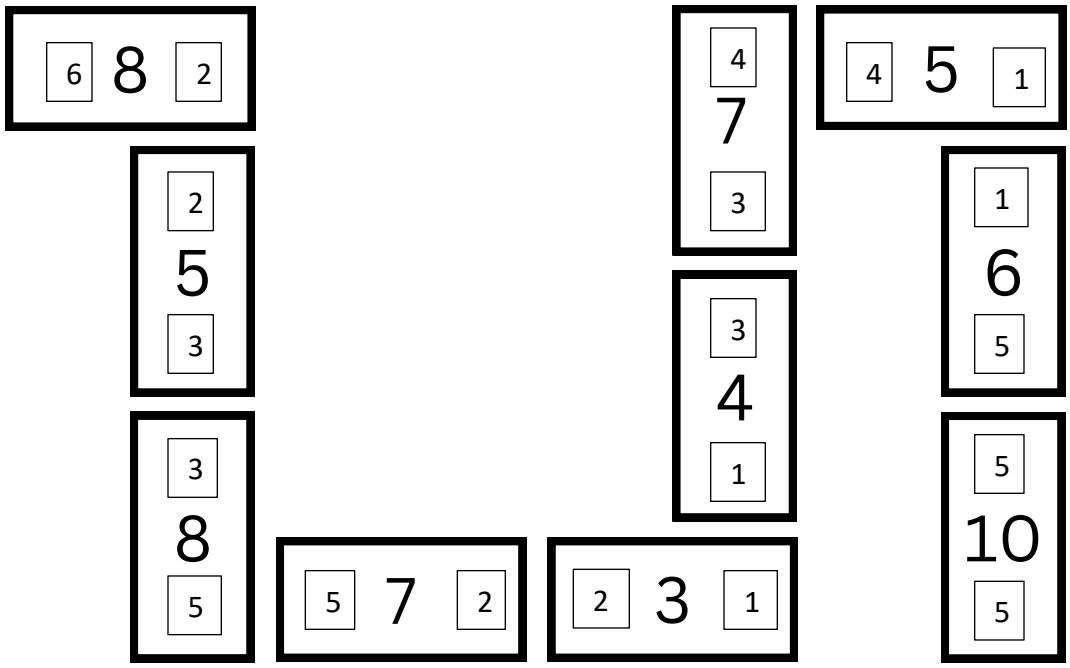
Pattern: 1 one, 2 twos, 3 threes, 4 fours



Pattern: rotating dot

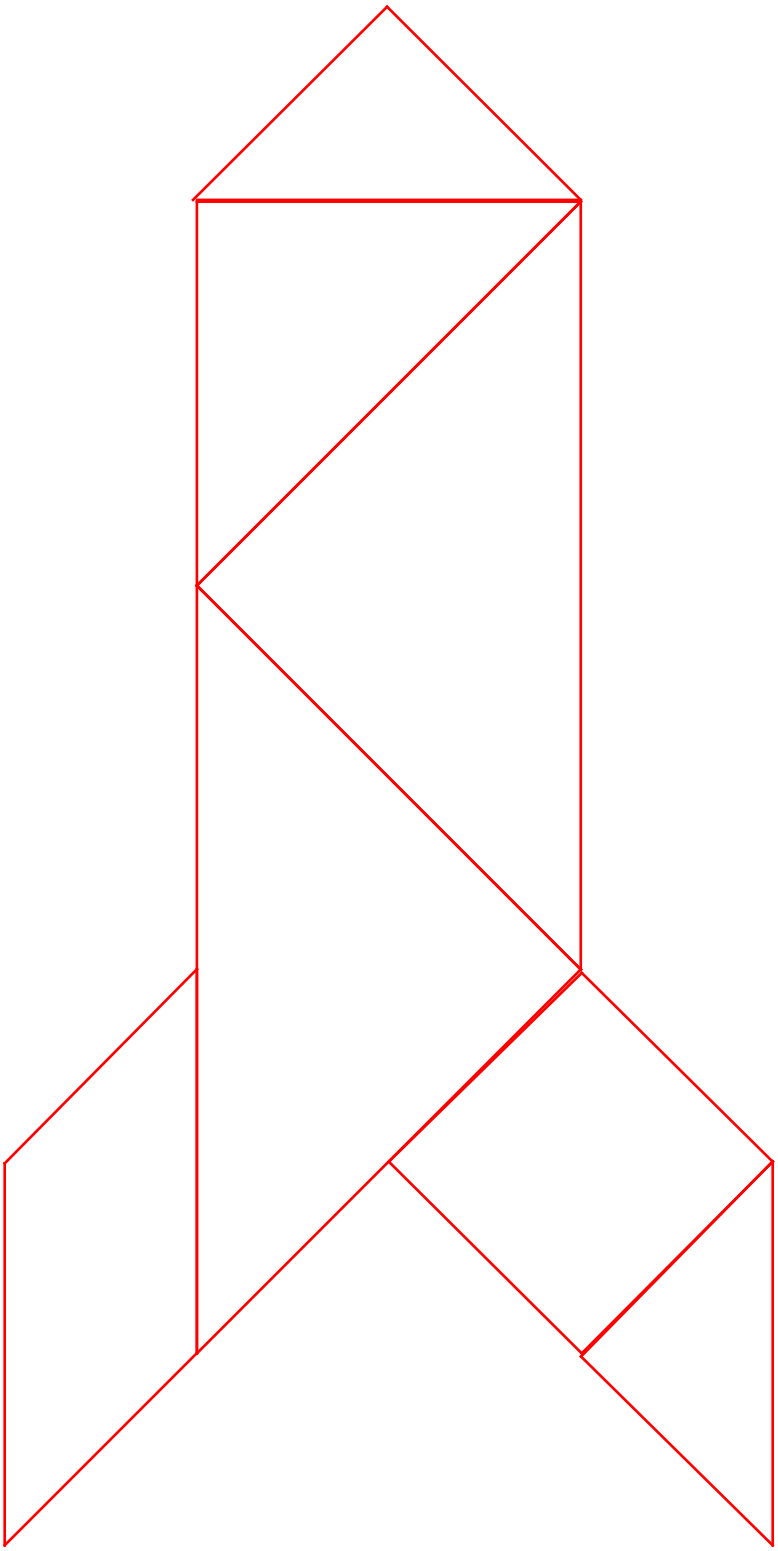
Dominos

Which dominos can be used to make the below chain? Dominos that touch must match.



Tangram

Use the 7 polygons to create the rocket shape.



Calculate 10

Use the following 4 numbers to find an expression for each number from 1 to 10. You must use each number once and only once. You may use addition, subtraction, multiplication, division and parentheses. The number 0 has been done as an example.

There is more than one way to do this – these are my solutions. - *Jennie*

Numbers to use: 4, 5, 6, 7

0 = 7 + 4 – 6 – 5

1 = (5 – 4) x (7 – 6)

2 = (5 – 4) + (7 – 6)

3 = (7 – 4) x (6 – 5)

4 = (7 – 4) + (6 – 5)

5 = (4 + 6) / (7 – 5)

6 = ((5 + 7) / 6) + 4

7 = (4 x 5) – 6 – 7

8 = (4 + 6) – (7 – 5)

9 = ((5 + 7) / 4) + 6

10 = 7 – 6 + 4 + 5

Bird Rescue

Round 1:

1) Of the 14 year old Macaw and the 13 year old Macaw, one was Mandy and the other was released in May.
- Mandy is 13 or 14 – not 8 or 10.
- Mandy was not released in May.
- May is 13 or 14 – not 8 or 10.

2) The bird released in June has a wingspan 4 inches shorter than Mandy
- June is not Mandy
- June is not longest – not 50”
- Mandy is not shortest – not 38”

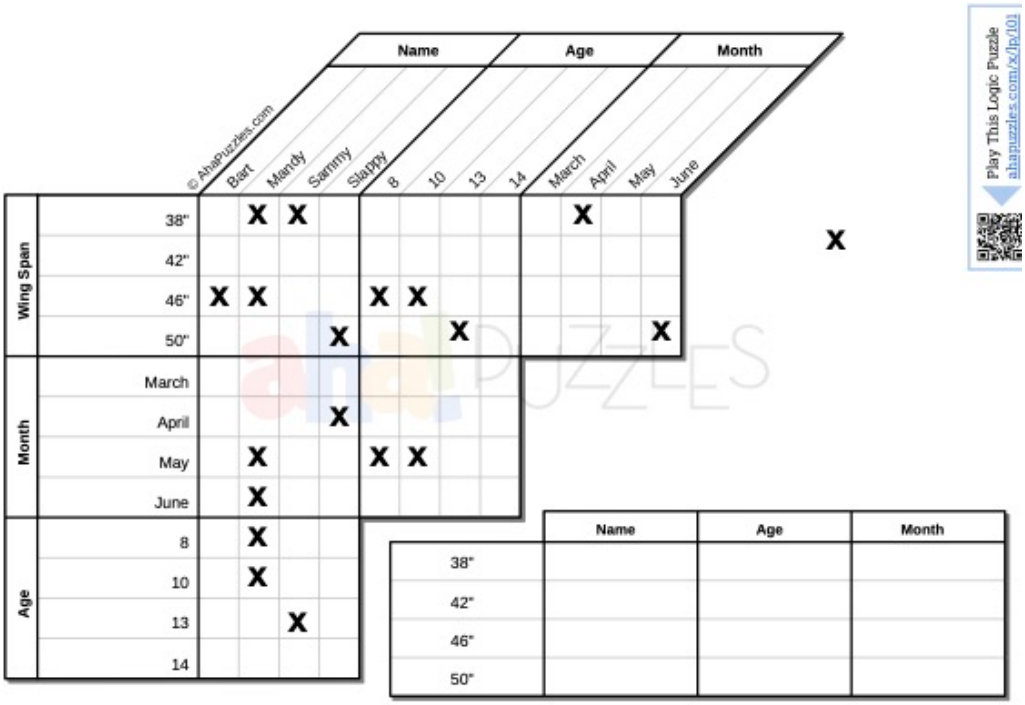
3) Sammy has a wingspan somewhat longer than the 13-year-old bird
- Sammy is not 13
- Sammy is not shortest – not 38”
- 13 is not longest – not 50”

4) Neither the bird with a wingspan of 46 inches nor Mandy is the 10 year old bird
- Mandy is not 10 (this is a repeat from 1)
- Mandy is not 46”
- 46” is not 10

5) The Macaw released in April has a wingspan somewhat longer than Slappy’s
- Slappy is not April
- Slappy is not the longest – not 50”
- April is not the shortest – not 38”

6) The Macaw released in March is either the one with a wingspan of 46 inches or the 8 year old bird
- 8 is not 46”

7) Bart doesn’t have a wingspan of 46 inches
- Bart is not 46”



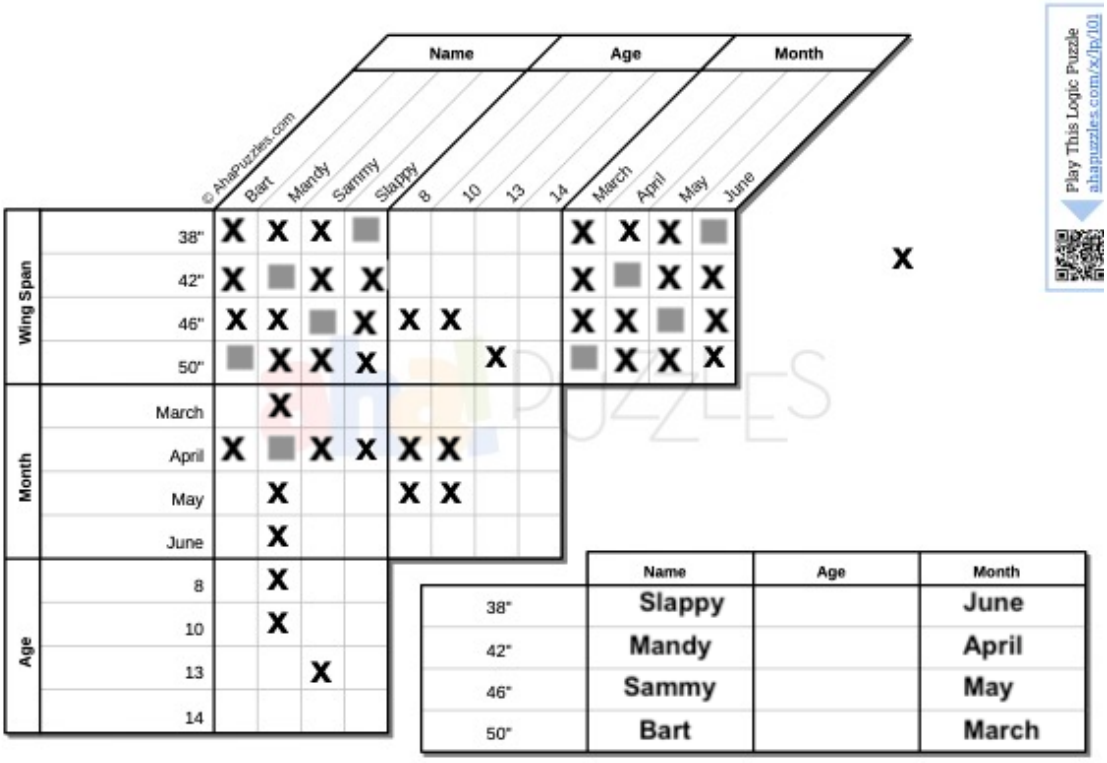
Round 2

6) The Macaw released in March is either the one with a wingspan of 46 inches or the 8 year old bird
- Mandy is not 8 nor 46” -> Mandy is not March
- Mandy is not May or June either -> Mandy is April and no one else is
- Mandy is not 8 or 10 -> April is not 8 or 10
- Mandy is not 38” or 46” -> April is not 38” or 46 “

1) Of the 14 year old Macaw and the 13 year old Macaw, one was Mandy and the other was released in May.
13 and 14 are May and Mandy/April.
46” is not 8 or 10 -> must be 13 or 14
Mandy/April is not 46” -> 46” must be May

2) The bird released in June has a wingspan 4 inches shorter than Mandy
- June is 38” or 42”
- Mandy is 42” or 50”
- June must be 38” and Mandy must be 42”
- 42” is April
- That leaves 50” must be March

5) The Macaw released in April has a wingspan somewhat longer than Slappy’s
- Mandy is longer than Slappy -> Slappy is 38”
- That leaves Sammy as 46” and Bart as 50”

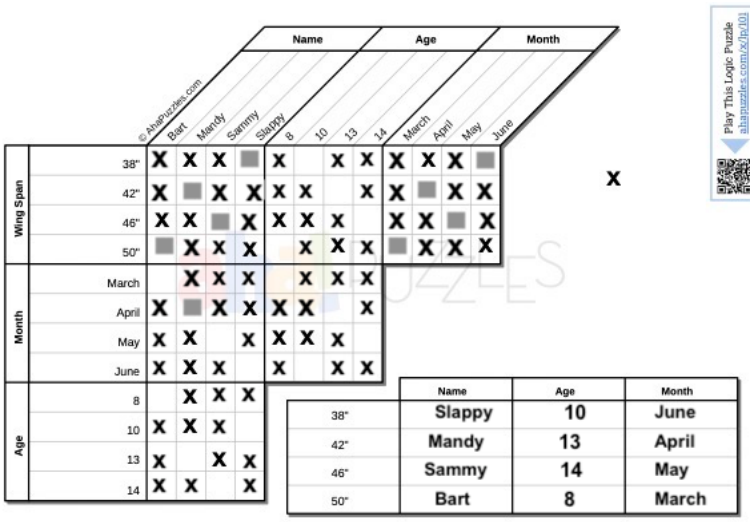


	Name	Age	Month
38"	Slappy		June
42"	Mandy		April
46"	Sammy		May
50"	Bart		March

Round 3

- Sammy is May but not 13 – must be 14
- Mandy must be 13

6) The Macaw released in March is either the one with a wingspan of 46 inches or the 8 year old bird
- 46” is May so March is 8
- That leaves June as 10



x

	Name	Age	Month
38"	Slappy	10	June
42"	Mandy	13	April
46"	Sammy	14	May
50"	Bart	8	March

Cryptogram

Can you decode the message below? Each letter in the original message has been substituted for a different letter. For instance all Z's in the original message might show up as Os in the encoded message. (This particular substitution is an example and might not be the case in the message below.) What does the original message remind us to do?

RFGQ GQ RFC AMSEYP AMBC. QFMU
THIS IS THE COUGAR CODE. SHOW

PCQNCAR, QMJTC NPMZJCKQ, KYIC EMMB
RESPECT, SOLVE PROBLEMS, MAKE GOOD

AFMGACQ.
CHOICES.

This cipher method is called a Caesar shift. We shift the alphabet over by 2 letters. - Jennie

ABCDEFGHIJKLMNOPQRSTUVWXYZ
CDEFGHIJKLMNOPQRSTUVWXYZAB