







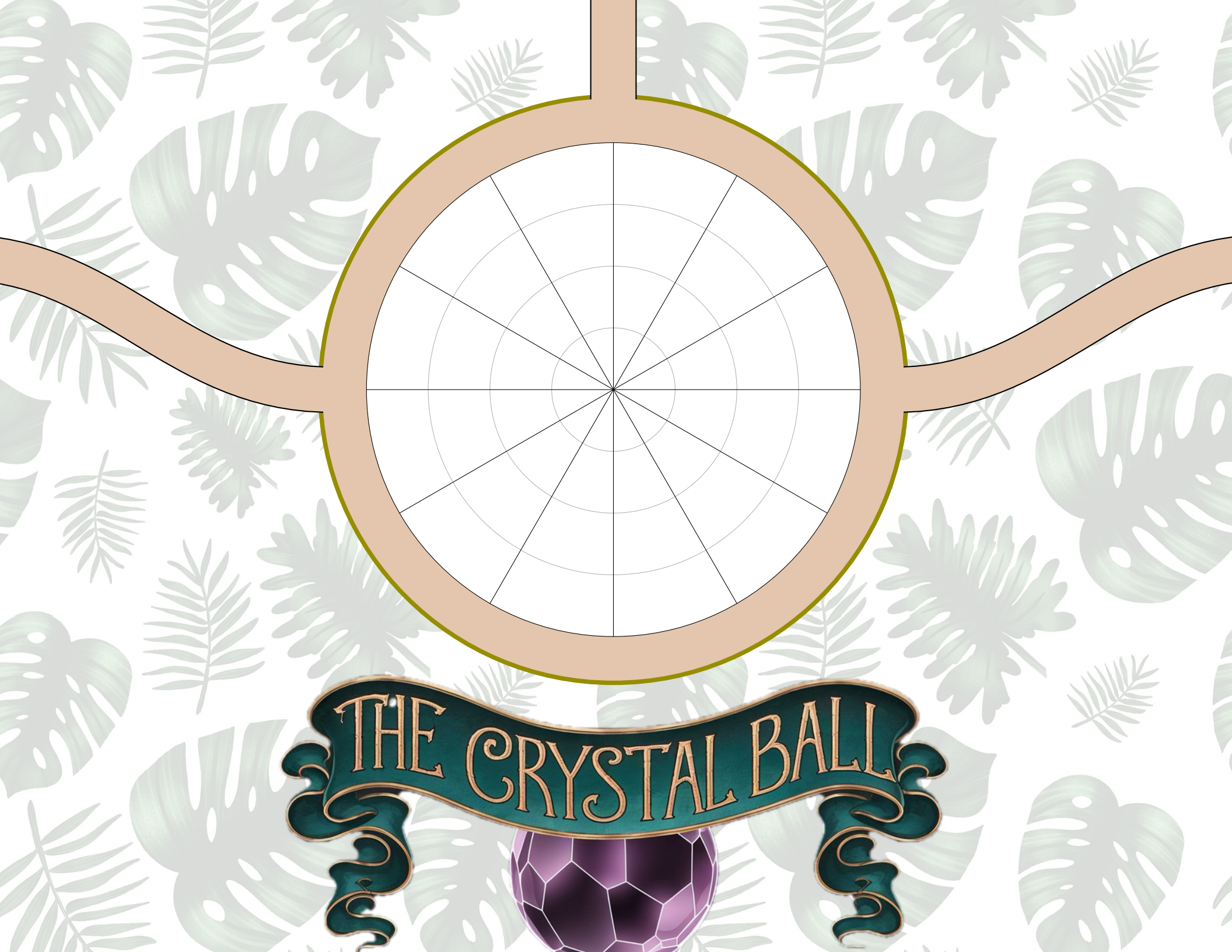


THE JUNGLE










THE CRYSTAL BALL



MaPP

IZIBALO

THE NEXT LEVEL 

You and your friend Jupiter are poking around his grandmother's attic and y'all discover a strange, tattered box with the word "Izibalo" scrawled on the outside. You open the box, and Jupiter reads the words on the side panel:

*A game for those who seek to find
a way to leave their world behind*

Finding no instructions, Jupiter rolls a die – and vanishes! Seemingly disappearing into the board game.

Click. Clack. Click. Clack. You turn around to see Jupiter's grandmother, Sierra, resting on her cane. She stares at you wide-eyed, points to the board, and exclaims:

The game has returned!

And now it has taken not just my friends, Alaina and Alex, but my grandson Jupiter as well. We were sucked into the game, years ago. I escaped by completing its tasks, but I never saw Alaina or Alex again.

When we played Izibalo, the answers to puzzles were engraved on a crystal ball. When we solved them all, I was transported home but the crystal ball shattered. I tried to go back to help my friends but the game vanished! Now it's back after all these years!

Well, this old lady doesn't have the energy left to play, but you youngins should be able to handle it. Will you find Alaina, Alex, and Jupiter?

You must enter Izibalo, complete the paths, retrieve those lost in the game and repair the Crystal Ball in the center.

In the MaPP Challenge, you'll face Path Mini-Puzzles, Warm-Up Puzzles, Main Puzzles, and more! Each Path Mini-Puzzle solves to a code associated with a certain campus landmark. Entering this code into your smart device while at that location will unlock a bigger Puzzle, which hides a secret word or phrase that you'll need to use logic and creativity to reveal. Entering this passphrase into your device reveals further puzzles, and helps solve the Metapuzzle of restoring the Crystal Ball and lost persons. Solve this Metapuzzle to win the game! You may be asked to solve other puzzles along the way, so please help everyone you can.

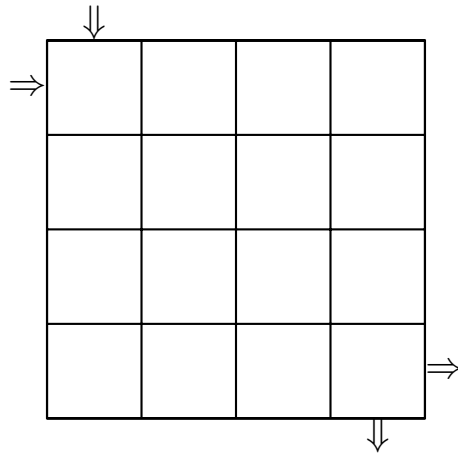
Let's get puzzling!

Code Reference

Letter	Decimal	Binary	Morse	Braille	Letter	Decimal	Binary	Morse	Braille
A	1	00001	.-	⠠	N	14	01110	-.	⠠
B	2	00010	-...	⠠	O	15	01111	---	⠠
C	3	00011	-.-	⠠	P	16	10000	.-.-	⠠
D	4	00100	-..	⠠	Q	17	10001	--.-	⠠
E	5	00101	.	⠠	R	18	10010	.-.	⠠
F	6	00110	..-.	⠠	S	19	10011	...	⠠
G	7	00111	--.	⠠	T	20	10100	-	⠠
H	8	01000	⠠	U	21	10101	..-	⠠
I	9	01001	..	⠠	V	22	10110	...-	⠠
J	10	01010	.----	⠠	W	23	10111	.-.-	⠠
K	11	01011	-.-	⠠	X	24	11000	-.-.	⠠
L	12	01100	.-..	⠠	Y	25	11001	-.--	⠠
M	13	01101	--	⠠	Z	26	11010	--..	⠠



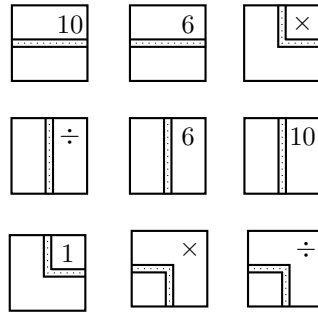
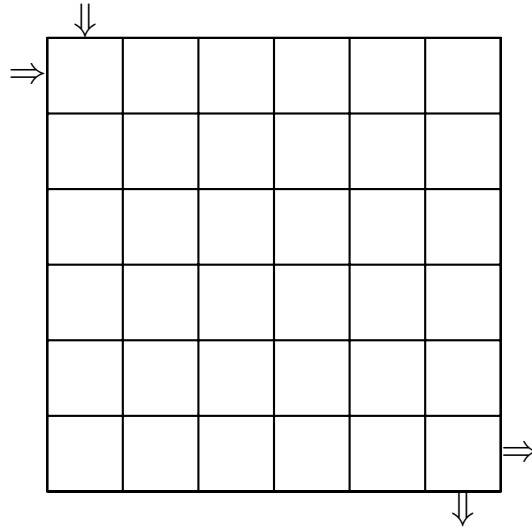
The Floor is Lava



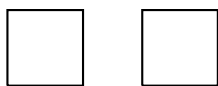
25	2	1
÷		5
12	+	13

IZINDLELA EZISONTEKILE

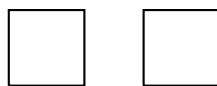
Twisting Paths



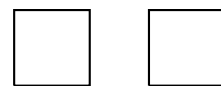
Path To The Sphinx
Tiles from
Cluekeeper:



Path To Waterfall
Tiles from
Cluekeeper:

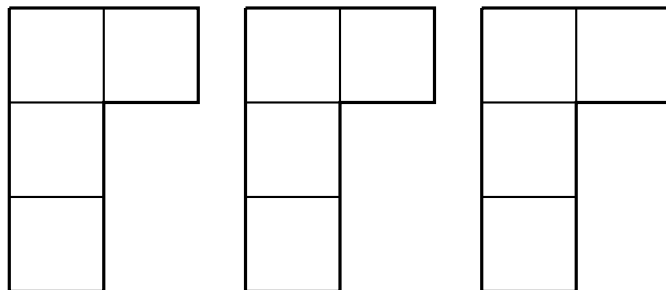
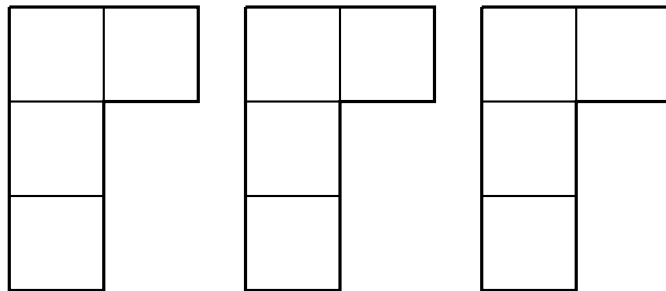


Path To King Snakes
Tiles from
Cluekeeper:



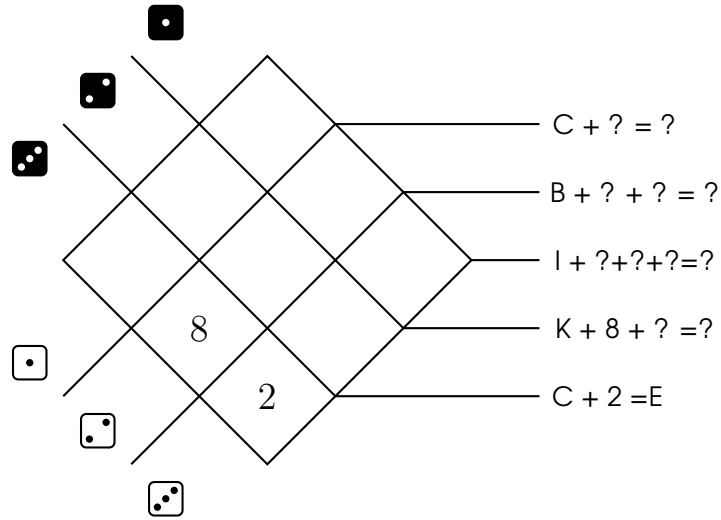
Shifting Sands

S	T	X	O	P
C	G	H	L	A
K	E	A	I	T
B	M	W	N	U
H	O	Y	H	E



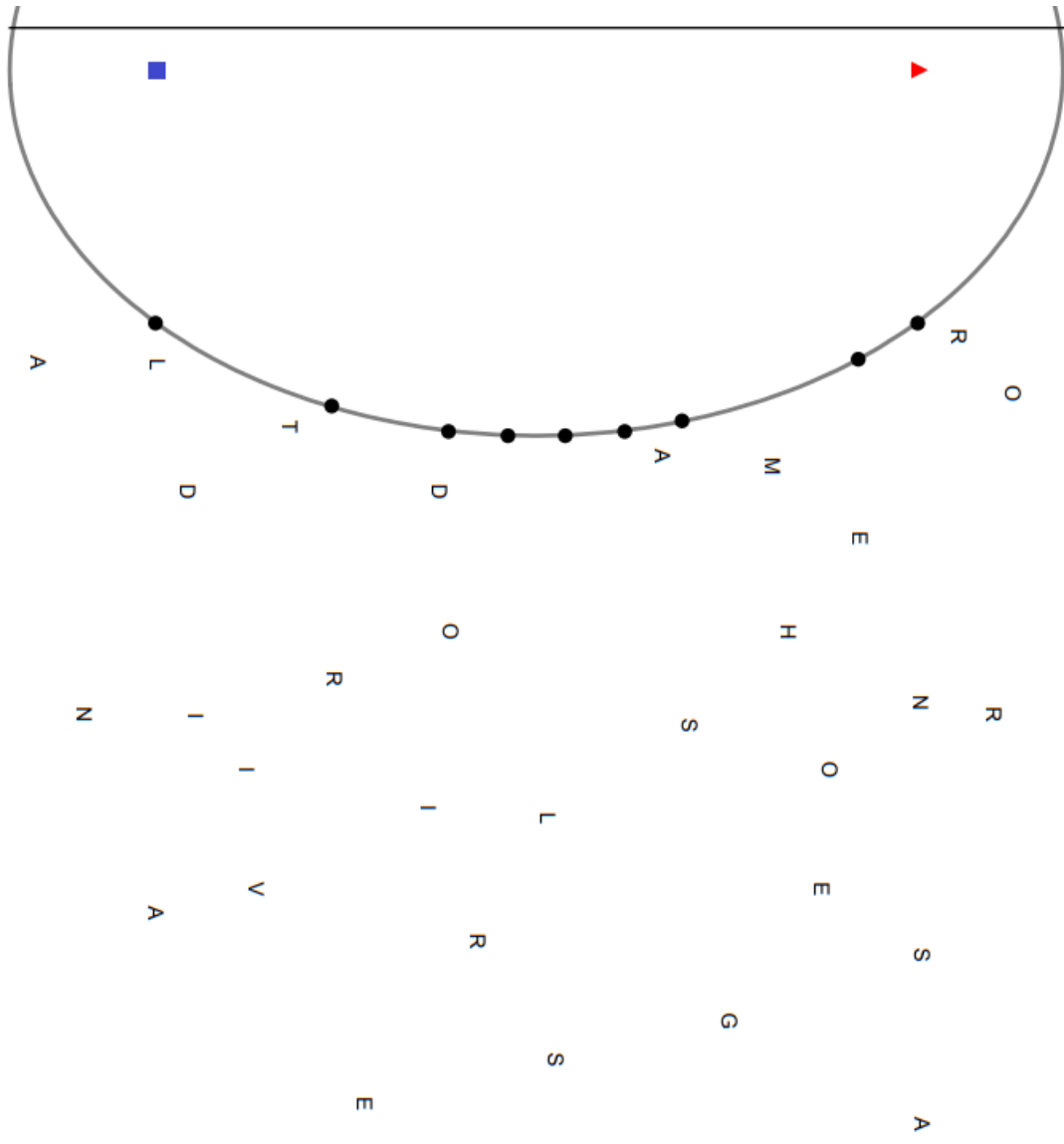


The Raft

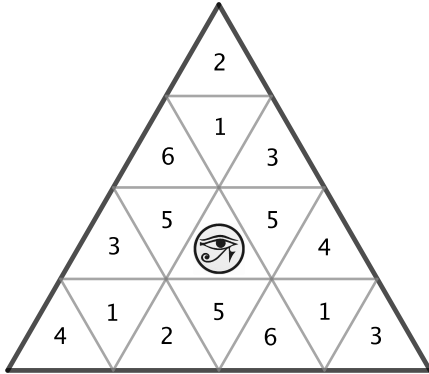




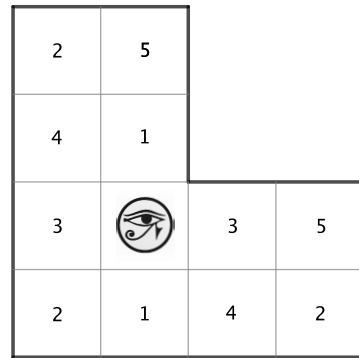
Arena



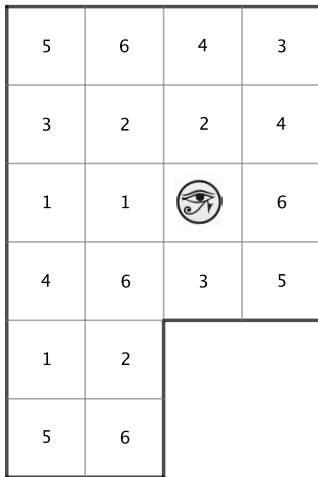
The Sphinx



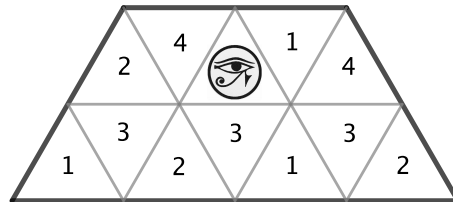
WADJET



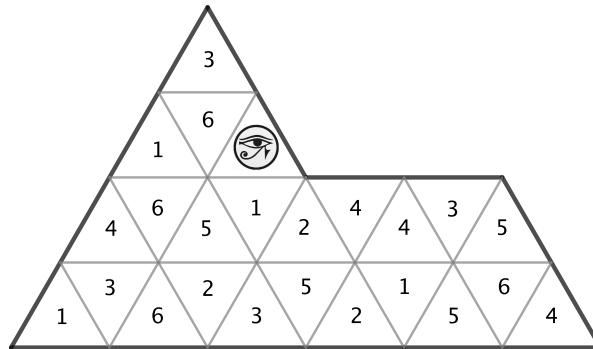
LOTUS



AMON-RA



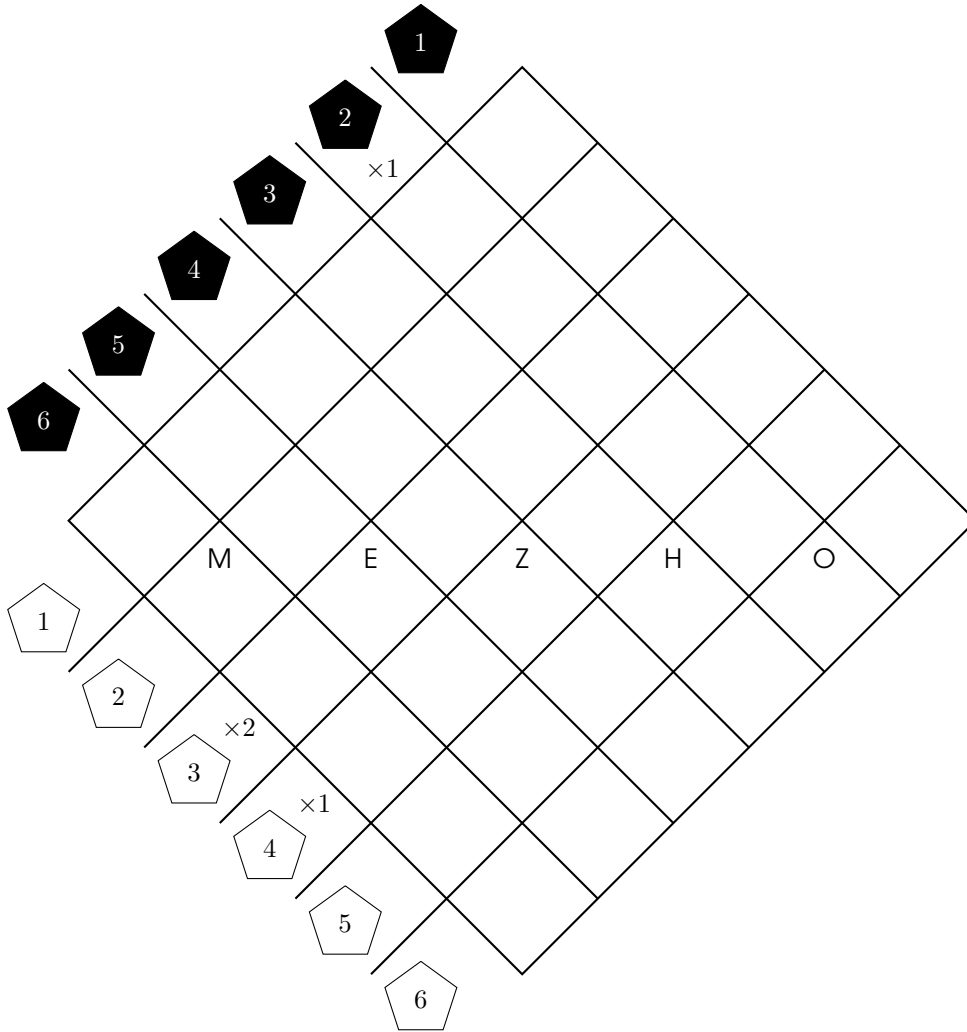
SCARAB



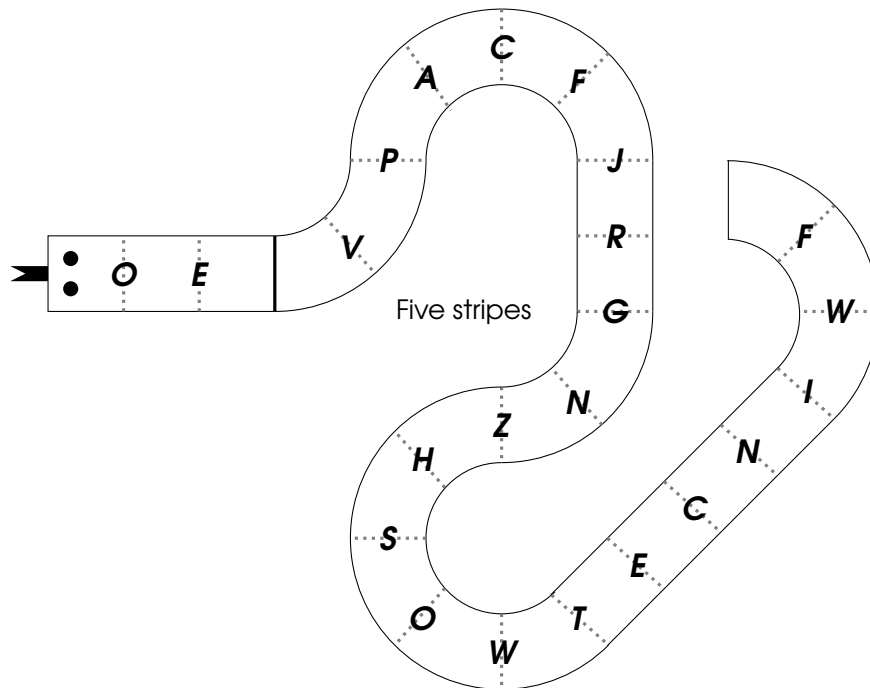
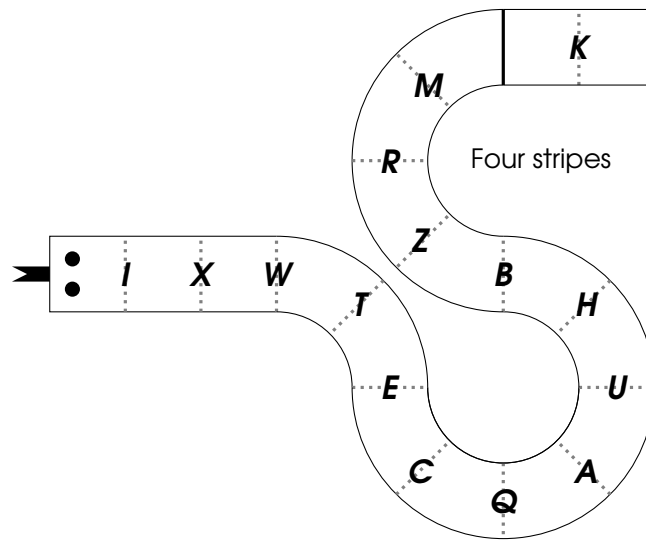
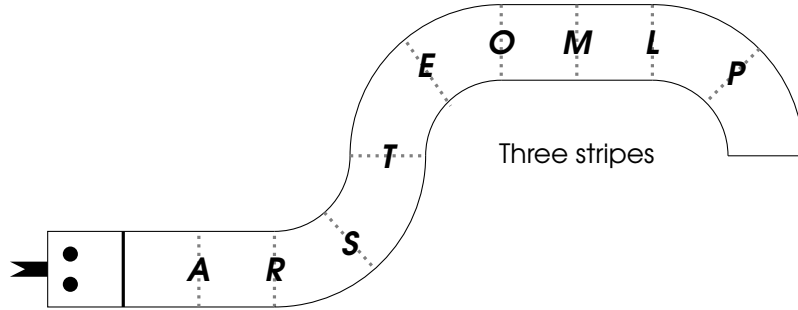
SPHINX



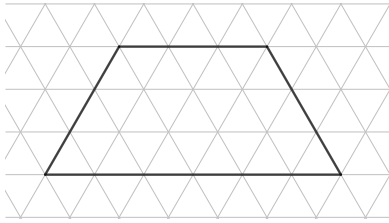
Waterfall



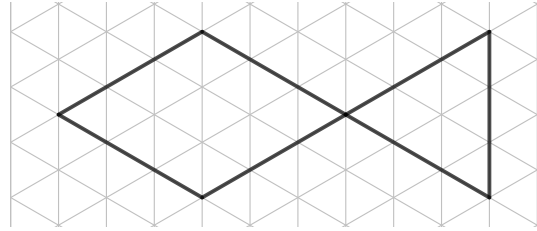
King Snake



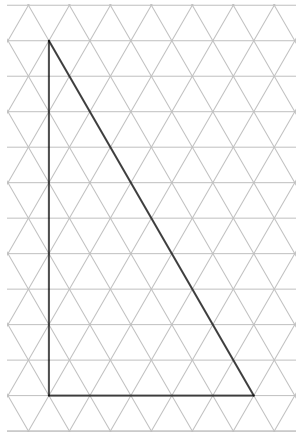
The Tomb



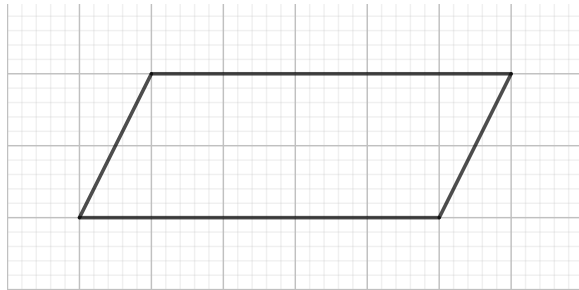
- | | |
|----|----|
| 9 | 16 |
| 20 | 36 |
| 4 | 5 |



- | | |
|----|----|
| 27 | 81 |
| 9 | 15 |
| 5 | 3 |

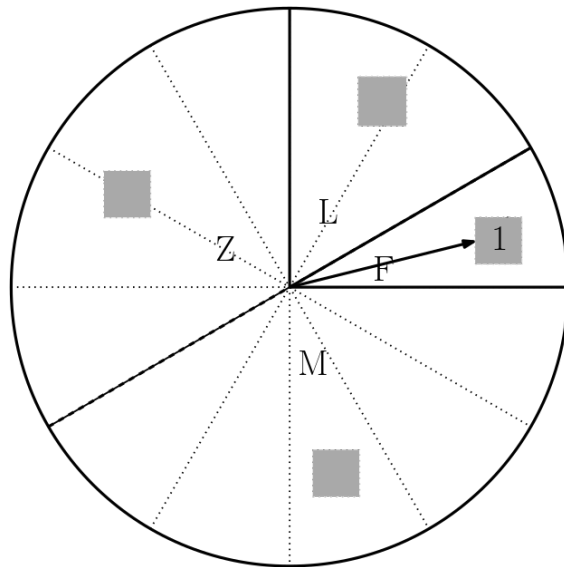


- | | |
|----|----|
| 12 | 10 |
| 4 | 15 |
| 3 | 5 |

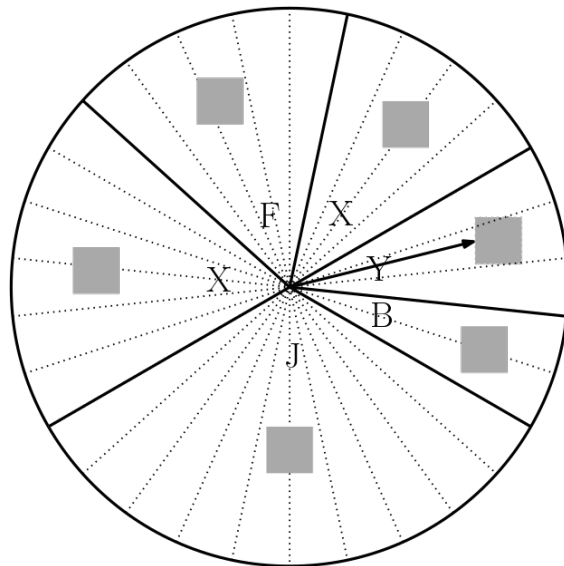


- | | |
|----|----|
| 4 | 7 |
| 12 | 5 |
| 3 | 15 |

The Whirlpool

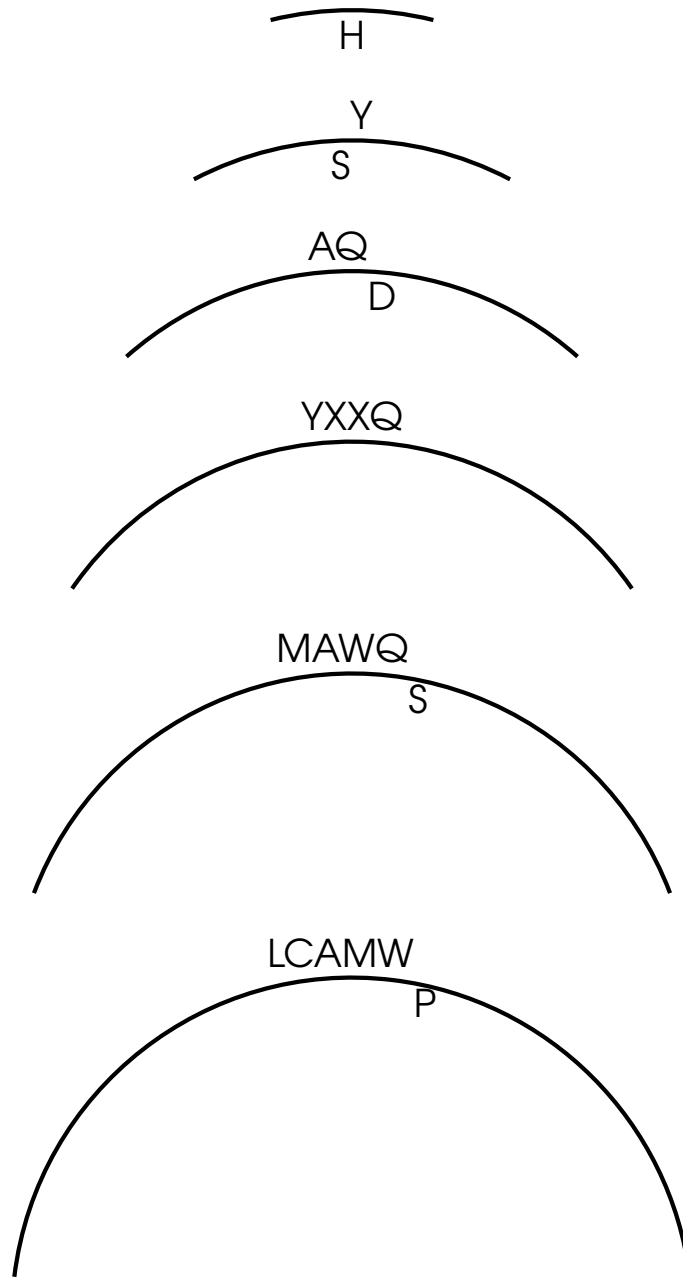


Teak Spinner

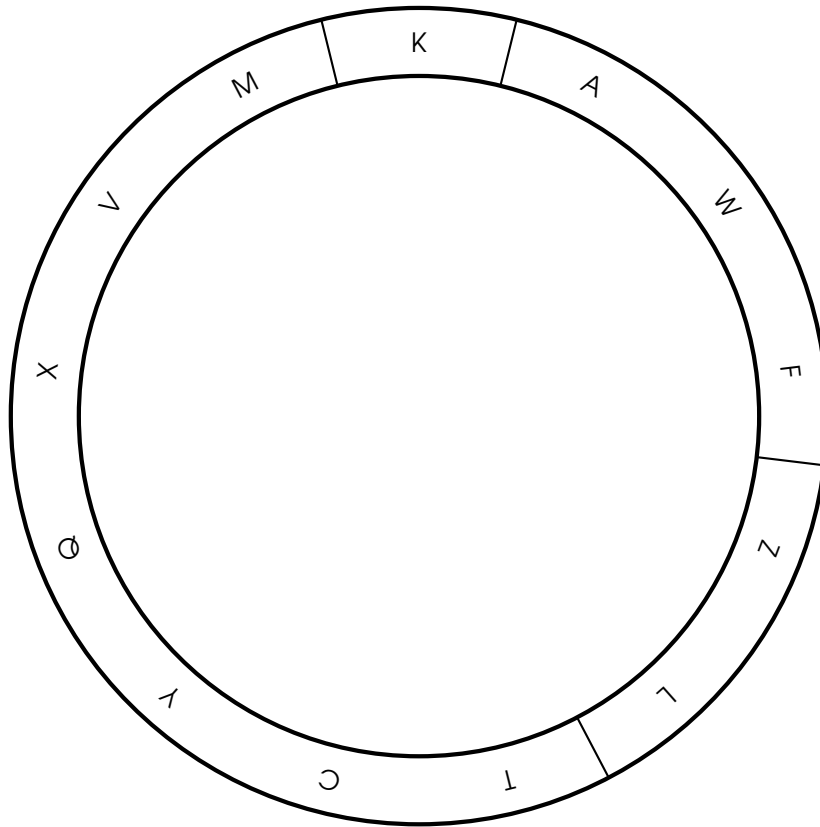
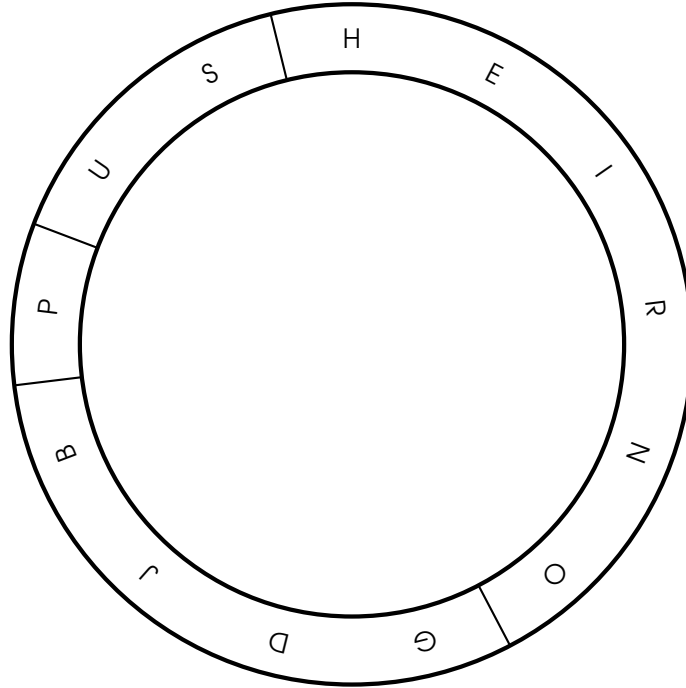


Stone Spinner

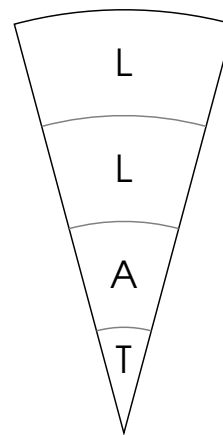
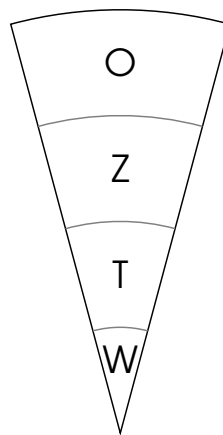
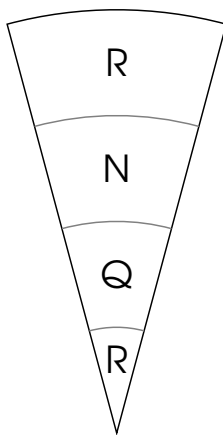
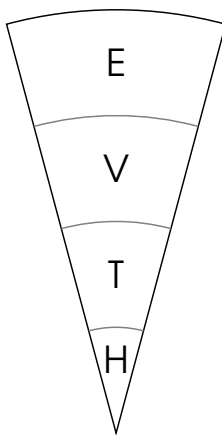
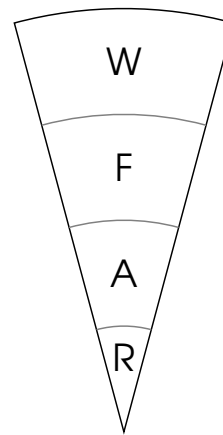
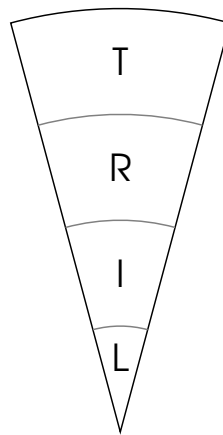
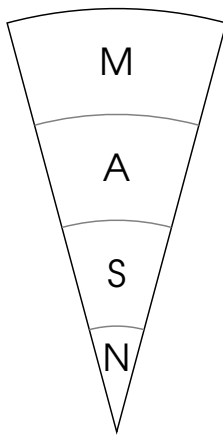
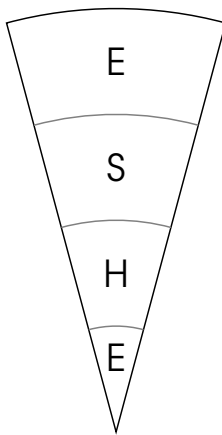
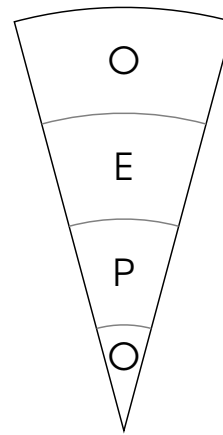
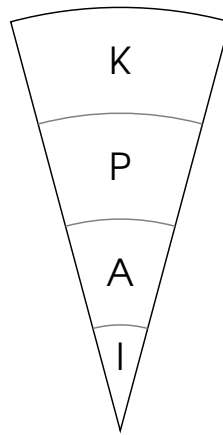
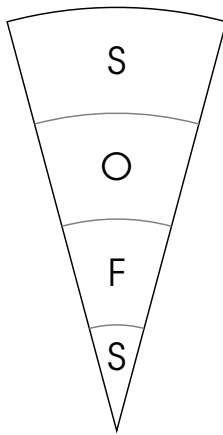
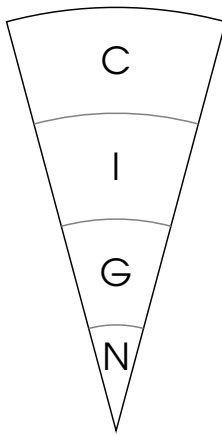
Ring Snakes (1/2)



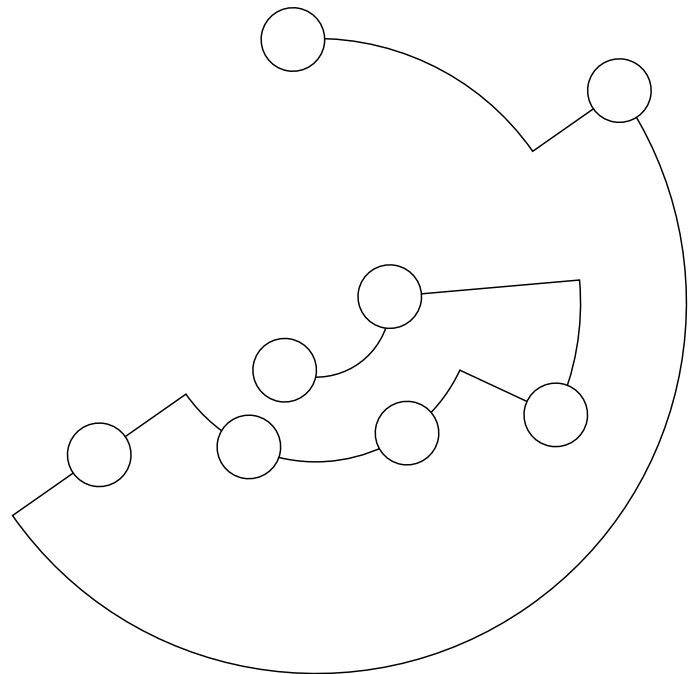
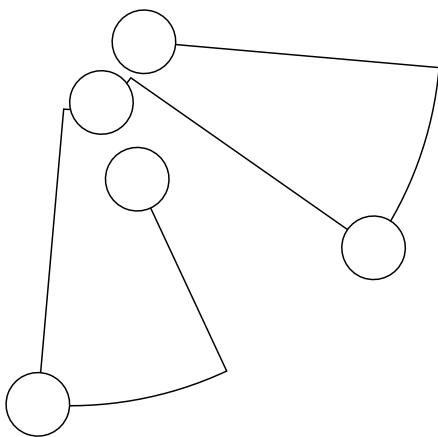
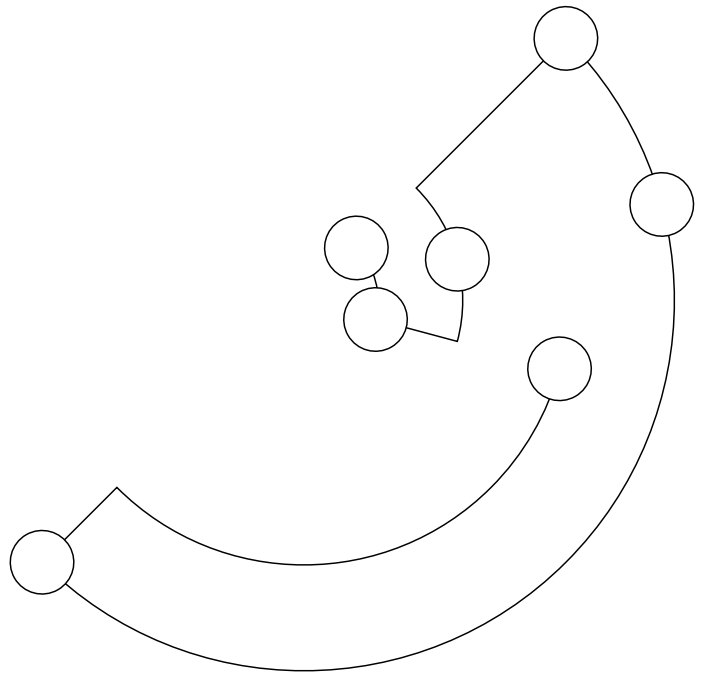
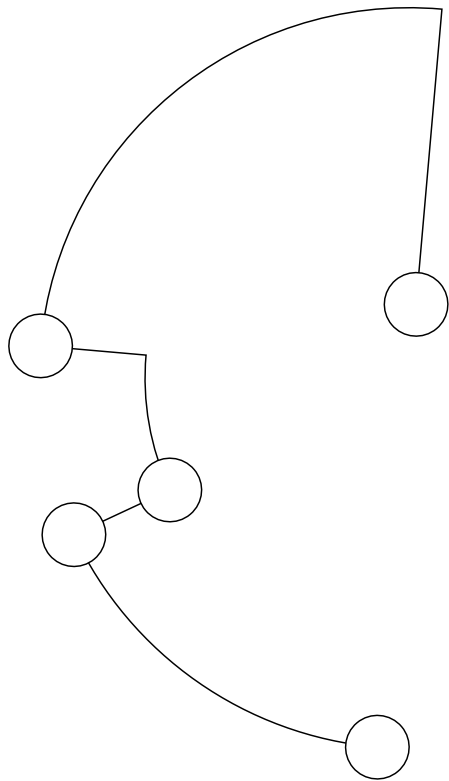
Ring Snakes (2/2)



The Crystal Ball (1/2)



The Crystal Ball (2/2)



Instructions for Organizers

- The player packet consists of all pages before this one, plus the game board. Each team should receive the player packet. The Organizer Appendix is from here to the end, and teams will **not** receive this. Clues are shown here but will be given to teams electronically via Clue-Keeper.
- Print out the board and tape it into shape, with The River above The Crystal Ball, The Desert on the left, The Jungle on the right. Paths should connect. Fold up the bottom of The Crystal Ball, then fold in the sides to make an envelope with the word IZIBALO readable from the top. Put the player packet inside the envelope. A cool option is to wax seal it together.
- We suggest printing three copies of each puzzle packet. If three copies do not fit well into your folded up board, then we suggest giving out the extra copies immediately after teams begin.
- If you can, print The Floor Is Lava and Twisting Paths on card stock. So the tiles when cut out will be easier to work with.
- If you can, print page 2 of The Crystal Ball on transparency sheet. This will help make the solving process easier for teams. Alternately, you could punch out the circles on page 2 of The Crystal Ball.
- Double check photo copies do not lose any aspects of the images. In particular check the faint dashed and dotted lines of King Snake and Whirlpool, as well as making sure that the + and ÷ are clearly unique in the path puzzles.

The Floor is Lava – Clue

You enter on Crystal Island surrounded by lava. Three treacherous paths wind their way through the lava field. The Crocodile’s path leads along a dark river, the Elephant’s path leads through an arid desert, and the Monkey’s path leads into a deep jungle.

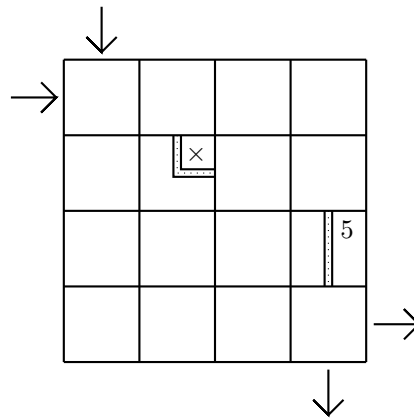
To pass the lava blocking your way, you must find a path through each grid. You will choose five tiles from the eight available, and place them in the grid to form a path whose algebraic solution will tell you location on campus to visit to unlock each puzzling path in the wilderness. The game will only let you pass if your path calculates the correct number.

Desert: Path to Shifting Sands

Who will follow the Elephant’s path through the Desert?

Seven tiles create a path from the upper left corner to the lower right corner whose integer value is as **SMALL** as possible. Enter this integer at the corresponding campus location to reach the Desert.

You can see two tiles already in the grid, and must place five more.

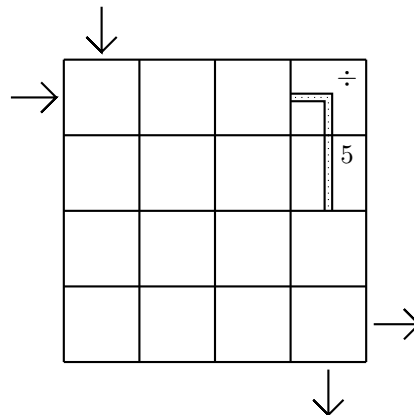


River: Path to Raft

Who will follow the Crocodiles’s path down the River?

Seven tiles create a path from the upper left corner to the lower right corner whose integer value is as **SMALL** as possible. Enter this integer at the corresponding campus location to reach the River.

You can see two tiles already in the grid, and must place five more.

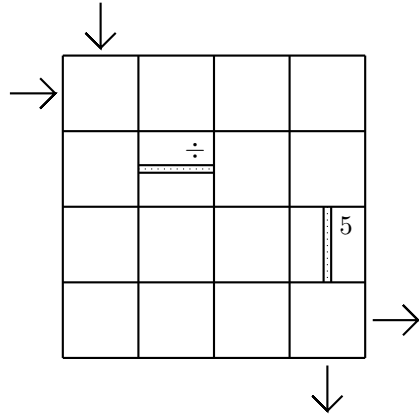


Jungle: Path to Arena

Who will follow the Monkey's path through the Jungle?

Seven tiles create a path from the upper left corner to the lower right corner whose integer value is as **SMALL** as possible. Enter this integer at the corresponding campus location to reach the Jungle.

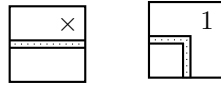
You can see two tiles already in the grid, and must place five more.



Twisting Paths – Clue

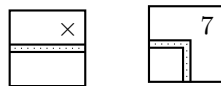
Desert: Path to Sphinx

Now that you have crossed the shifting sands, the path must continue. You see a large statue looming in the distance. Use the two tiles provided here along with the other 9 to finish the Path to the Sphinx that provides the **LARGEST** possible integer solution. Enter this integer at the corresponding campus location to reach the Sphinx.



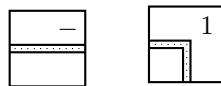
River: Path to Waterfall

Now that you've won the raft, you speed down the river. In fact, you're beginning to move a little too fast, and you hear the roar of a waterfall approaching. Use the two tiles provided here along with the other 9 to finish the Path to the Waterfall that provides the **LARGEST** possible integer solution. Enter this integer at the corresponding campus location to reach the Waterfall.



Jungle: Path to King Snakes

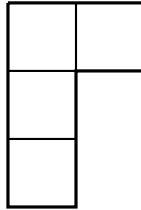
You've made it past the first snakes, but now you must search for the King. Use the two tiles provided here along with the other 9 to finish the Path to the King that provides the **LARGEST** possible integer solution. Enter this integer at the corresponding campus location to meet the King Snake.



Shifting Sands – Clue

The nomads have crossed this dangerous sand field safely for centuries. If only you knew how! They use bent panels, and place them on the sand so the panels don't overlap. No matter how you arrange the panels, they cover all but one of the sand squares. If you could figure out which sand squares might be left uncovered, you will uncover the password used to cross this barren land.

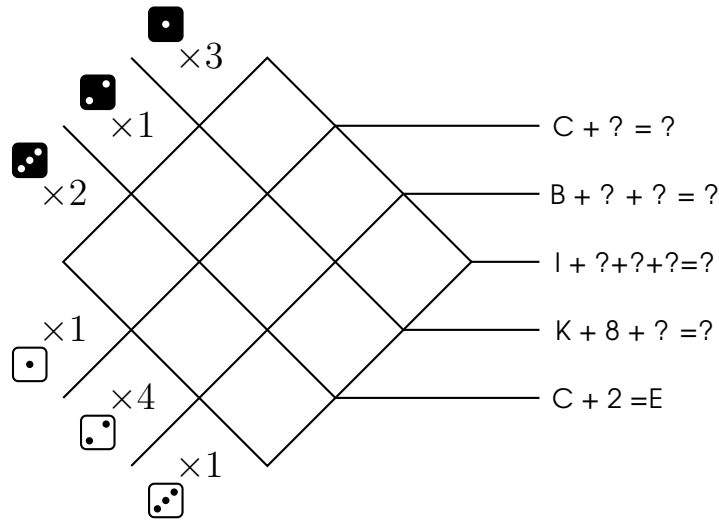
You are allowed to flip the panel over



The Raft – Clue

At the bank of the river, you meet an old woman with a crude raft. You ask her if she will take you down the river. "This is the river Ithuba", she says, and only one who understands Izibalo can navigate its treacherous waters. She pulls out two dice, one white, one black. "If you can reveal the secret of these dice," she says, "I will gift you my raft and wish you well."

You take the dice and examine them. The white one has faces and the black die has faces . With six faces there are 36 total outcomes but some just look the same. Some of the 9 different outcomes appear more often than others. The sum of the two dice can only be 2 through 6. Shifting the given letter in the alphabet by the number of outcomes for each possible sum will reveal the secret of the dice.



Arena – Clue

Your path through the jungle opens up into a clearing. All around, snakes coil in the trees, watching a battle in a strange arena at the center of the clearing. A friendly parrot lands on your shoulder and explains the contest.

Two measuring snakes will have nine battles in the arena. Measuring snakes have stripes on their bodies and use them to measure distances. Each snake has a home base which matches their eyes. For each point on the edge of the arena, both snakes try to measure its distance from their home (if they can). The winner of the battle is the snake that measures the point while getting its head furthest out of the arena. When a snake wins a battle, it gets to eat a letter.

The parrot says it will show you the safest path through the jungle if you can find the two word phrase that ends the snake battle.

You should cut out the snakes so you can maneuver them around the arena

The Sphinx – Clue




The path has led you to the great Sphinx. On the walls of the Sphinx you find five ancient symbols. The power of each symbol is that it can be re-created from four smaller copies of itself. Do this, and look deep into the eyes to find the answer to the riddle of the sphinx.

Waterfall – Clue

The river Ithuba has carried your raft to the verge of a high waterfall. You manage to run aground before the falls, but how will you continue? You look around and find a large flat rock. On the rock is a grid of squares and a very strange pair of **twelve-sided** dice. Each die face contains a number between 1 and 6, but the mist from the falls has washed most the markings off!

You notice markings on the side of the rock that may help. They give the probability distribution of the sum totals of rolling the two dice:

- Sum of 2 occurs 1 out of every 72 rolls.
- Sum of 3 occurs 7 out of every 144 rolls.
- Sum of 4 occurs 5 out of every 72 rolls.
- Sum of 5 occurs 1 out of every 9 rolls.
- Sum of 6 occurs 5 out of every 36 rolls.
- Sum of 7 occurs 25 out of every 144 rolls.
- Sum of 8 occurs 17 out of every 144 rolls.
- Sum of 9 occurs 19 out of every 144 rolls.
- Sum of 10 occurs 5 out of every 48 rolls.
- Sum of 11 occurs 1 out of every 16 rolls.
- Sum of 12 occurs 1 out of every 36 rolls.

A picture shows two children playing with the dice, and you can just tell that the black die should have exactly one , and the white die should have exactly two  and one . Use the grid and your Izibalo skills to find what you need to descend the waterfall.

King Snake – Clue

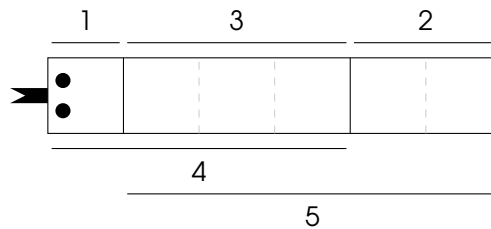
You turn a corner and see another Measuring Snake, pictured below. Amazingly, it speaks!

Have you ssseen my three brothersss and sssisssterrsss? My sssiblingsss and I are ssspecial. Look at my ssstripes: there is exactly one way to measssure any length ussing them, and the disssstance from my head to my leftmossst ssstripe (1) iss ssshorter than the disssstance from my tail to my rightmossst ssstripe (2).

Indeed, from the illustration shown below, you can tell that none of the King's measurements (1, 2, 3, 4, and 5) are repeated. You can also see that the King is perfect – his stripes can measure all possible distances from 1 to 5.

The King is pleased you noticed, but warns you that his siblings are not perfect and there are distances they cannot measure.

The siblings are hard to spot, but if you figure out where their stripes should go, you will learn a two-word phrase and earn the King's respect.



The Tomb – Clue

Alex is so thankful for your help in freeing him from the Sphinx. In all the years he was trapped in the Sphinx, he discovered the location of a hidden tomb full of treasures. You enter the tomb, the darkness making it *impossible to see*.

You come to a stone vault with four shapes carved into it. Under each shape, there are six numbers. Alex tells you that each shape can be divided into identical (but smaller) versions of itself. The numbers suggest how many smaller shapes you need, and some of those numbers will work while others will not.

Determine which numbers will work for each shape, and then FEEL along those numbers to open the vault.

The Whirlpool – Clue

You decide to explore the left fork of the river Ithuba, and soon come upon a still pool of water. Beside the pool are two pedestals, one of teak and one of stone. Each has a silver spinner fixed to its center. You flick one of the spinners, and amazingly the pool of water begins to spin as well. A water spirit appears and tells you her story:

The teak spinner once had the numbers 1 through 4. The stone spinner once had numbers 1 through 6. Over the years, most of the painted numbers have rubbed off, leaving gray smudges behind. I have forgotten what numbers go to which spaces. You must know Izibalo well, would you help me write the numbers back in their spaces?

The water spirit does remember a few helpful things, which she tells you:

- The probability the sum of the two spinners is a 2 is $\frac{1}{180}$
- The probability the sum of the two spinners is a 3 is $\frac{1}{24}$
- The probability the sum of the two spinners is a 9 is $\frac{11}{180}$
- The probability of getting a 4 is the same on each spinner.

Ring Snakes – Clue

Though the path to the Crystal leads West, you notice a smaller path heading east into the jungle and decide to explore. You find what appears to be an ancient stone tablet marked with six curves.

Two measuring snakes are coiled in front of the tablet. These snakes have swallowed their tails to become perfect like the King, and can now measure any length in exactly one way. Together, they can decode anything, as long as they agree on the length of the curve.

If you rotate these snakes correctly, perhaps you will learn what they are thinking.

Cut out the two concentric rings of letters to make two separate circular snakes. You will want to cut out the middle space as well for each snake

The Crystal Ball – Clue

After much toil and effort, you've reached the Crystal Ball that shattered years ago. The twelve shards lie strewn about the pedestal. A strange voice speaks, seemingly from inside your own mind:

"Welcome brave traveler. Have you uncovered the mysteries of this place? Only one who knows the six Magic Phrases" () "will be able to repair this broken Crystal Ball. Once that is done, look to the Four Paths: these will show you the clues necessary to discover a new Magic Phrase that will be the key to your escape."