



0 1 2 3 4 5 6 7 8 9 10 ...

On Beast Island, we can write the numbers zero through nine usin' only one o' the ten digits.

But, we be needin' a *tens* place to write the number ten.

With just two digits on Binary Island, they can only write the numbers zero and one with a single digit.

Do they need a *twos* place to write the number two?

Aye.

There be no digit 2 on Binary Island. So, to write two, they be needin' a *twos* place.

	.	:
zero	one	two
0	1	10

Whoa. So, on Binary Island, this number means "two"?

I get it. On Beast Island, this number has 1 ten and 0 ones.

Beast Island
10 = ::::

tens
ones

Binary Island
10 = :

twos
ones

But on Binary Island, the 1 is in the *twos* place. So, this number has 1 two and 0 ones.

How do they write the number three on Binary Island?

Try it.

To write three, you could just put a 1 in the twos place, and a 1 in the ones place.



1 two and 1 one makes three.

But, how do you write the number four?



Try it.

Like this? 1 two and 2 ones makes four.

Grogg, there's no digit 2 on Binary Island!

So, you can't have a 2 in the ones place.

2 ones makes 2!

Oh, so we need another two!

But that gives us a 2 in the twos place.

We can't have that, either.

To write four, we need a **fours** place.



Aye. On Binary Island, 100 be right after 11.

How can ye be writin' the numbers from five to eight on Binary Island?

	.	:	::	:::	:::	:::	:::	:::	
<i>Beast</i> :	0	1	2	3	4	5	6	7	8
<i>Binary</i> :	0	1	10	11	100				

Try it.

	.	:	::	:::	:::	:::	:::	:::	
<i>Beast</i> :	0	1	2	3	4	5	6	7	8
<i>Binary</i> :	0	1	10	11	100	101	110	111	

After 100 comes 101.

There's a 1 in the fours place, and a 1 in the ones place, which makes five.

Then, six has a 1 in the fours place and a 1 in the twos place.

And to write seven, we need 1 four, 1 two, and 1 one .

How is eight written on Binary Island?

1 0 0 0

eights ↑
 fours ↑
 twos ↑
 ones ↑

Seven is the largest 3-digit number on Binary Island.

To write eight, we need an eights place!

The place values keep doubling!

1,000,000

millions ↑
 hundred-thousands ↑
 ten-thousands ↑
 thousands ↑
 hundreds ↑
 tens ↑
 ones ↑

1,000,000

sixty-fours ↑
 thirty-twos ↑
 sixteens ↑
 eights ↑
 fours ↑
 twos ↑
 ones ↑

Aye. Usin' ten digits on Beast Island, each place value be ten times bigger than the one before it.

But, usin' just two digits on Binary Island, each place value be twice as big as the one before it.

