








# Sword of Knowledge



The Dragon of Ignorance has three heads and three tails. You can slay it with the Sword of Knowledge, by chopping off all its heads and all of its tails. With one stroke of the sword, you can chop off one head, two heads, one tail or two tails.








But The Dragon of Ignorance is hard to slay! If you chop off one tail, two new tails replace it. If you chop off one head, a new one grows in its place. If you chop off two tails, one new head grows. If you chop off two heads nothing grows.

Sword of Knowledge	
Chopped Off	Grows
	
	
	
	nothing

Show how to slay The Dragon of Ignorance. How many chops do you need?








## Extensions:

- How would you slay the Gorgon of Hubris who has 3 heads and 4 tails?
- Can you slay the above two beasts with the Sword of Foolishness?

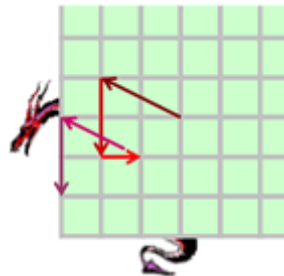
Sword of Foolishness	
Chopped Off	Grows
	
	
	
	nothing



- Can you slay the above two beasts with the Sword of Contemplation?

Sword of Contemplation	
Chopped Off	Grows
	
	
	
	nothing

- As you are bravely fighting the Dragon of Ignorance with the Sword of Knowledge, an artistic damsel is busy plotting the number of heads and tails. Can you understand her art?



### The Math in This Problem:

A sword of knowledge can slay the Dragon of Ignorance, who has three heads and three tails. With one stroke, slayers can chop off one head, two heads, one tail, or two tails; however, the consequences lead to a variant of the structure. In order to successively slay the Dragon of Ignorance, Students must exercise strategic analysis when fighting this creature.