



## Incense Clock

The ancient Chinese developed a clock that told time by the burning of incense. The steady smoldering of an incense stick provides the periodic "motion" of the clock. As the stick slowly burns, the heat breaks weighted threads set at regular intervals across the incense. The distance between each thread corresponds to a specific length of time. Time can be told by adding up the amount of threads that have broken.

### Materials

a foil bread pan  
gravel  
12 pieces of thread  
12 small metal weights or washers  
2 sticks of incense of approximately the same size  
ruler  
pen  
kitchen tongs  
matches  
watch



### Activity

- 1) Divide the pieces of thread into two groups of six. Tie a washer or weight to each end of six pieces of thread.
- 2) Fill the bread pan almost to the rim with gravel.
- 3) With a ruler, measure six equal distances along the length of the incense sticks and lightly mark them with a pen.
- 4) Lay a stick of incense on top of and in the middle of the gravel.
- 5) Lay the pieces of thread across the width of the pan so that they cross just above the incense at the six marks on it. Make sure that the weights or washers attached to the thread hang equally over each side of the pan, but do not touch the surface under the pan.
- 6) With a match, light the incense. Allow it to burn with a flame for about 30 seconds. Blow out the flame and allow the stick to smolder.
- 7) Check the time on a watch each instance that a thread is broken. Determine how much time elapses between threads.
- 8) When the stick is burnt out, remove it with tongs and tie the weights or washers to the ends of the other six pieces of thread. With the other incense stick, repeat the activity.



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### **WARNING!**

Be careful when using matches and lighting the incense. Get an adult to help. Never leave the incense unattended. Never touch lit incense. Handle it only with the tongs. When finished, run the stick under water to insure it is burnt out.

### **Questions**

Does the clock keep good time the second try?

What factors may not make this the most accurate way to tell time?

### **EXTRA INFORMATION!!!!!!**

The Chinese developed several variations of the incense clock including one that indicated hours by smell. Different types of incense were placed next to each other to create one long stick that would burn for about twelve hours. Each type smoldered for an hour and the scent given off would indicate the time.