

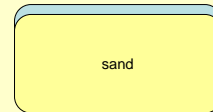
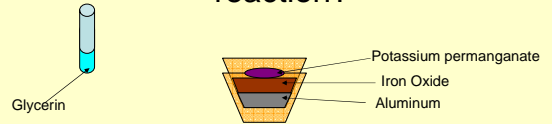
So many cool things to explore
–So little time



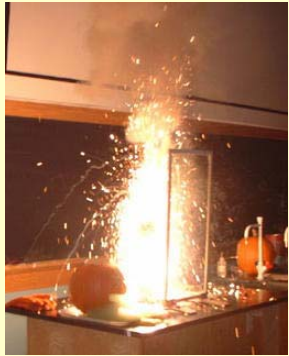
The universe is full of magical things, patiently waiting for our wits to grow sharper.

– Eden Philpotts

What happened with the thermite reaction?

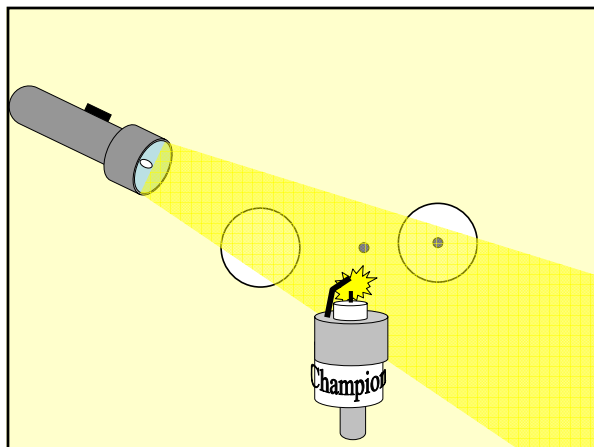


Observations vs. Conclusions

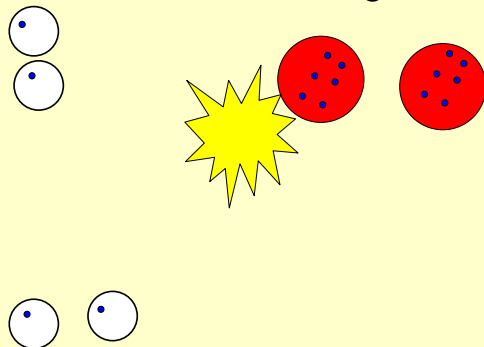


Chemical vs. Physical changes

- What distinguishes the two?



Chemical Change



Chemical Change

$2\text{H}_2 + \text{O}_2 \Rightarrow 2\text{H}_2\text{O} + \text{ENERGY}$

Water: the 3 phases

Heating steam

How about magic?

- Let's talk to the Genie

H_2O_2

Learning Check: Chemical Or Physical Change?

	Chemical	Physical
Magnesium burns when heated in a flame	✓	
Magnesium metal tarnishes in air	✓	
Magnesium metal melts at 922K		✓
Grape Kool-aid lightens when water is added		✓

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Learning Check: Chemical or Physical Property?

	Chemical	Physical
Magnesium metal is grey		✓
Magnesium metal tarnishes in air	✓	
Magnesium metal melts at 922K		✓
Magnesium reacts violently with hydrochloric acid	✓	

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Intensive And Extensive Properties

- Intensive properties** are independent of sample size
 - Examples: color, texture, density and temperature
- Extensive properties** depend on sample size
 - Examples: volume and mass
- Properties used to identify substances are always intensive
 - Density, color, and texture are often helpful in identification, but temperature is not

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