

Name Key Date _____ Per. _____

Lab Stations: Physical vs. Chemical Changes

Directions: Please follow the directions at each station. Keep lab safety guidelines in mind at all times. Make sure each station is clean, dry, and back in order before you move on to a new station. Record careful observations, answer the problem, and write your conclusion in the spaces provided.

Station 1 Burning Match

Observations	Chemical or Physical?
<ul style="list-style-type: none">tip catches firewood catches firesmoketip & wood turns black & crumbles	

Conclusion:

clue: Burning property: flammability

Example
Conclusion

Flammability is a chemical property. When the match is struck the red tip catches fire and burns. The left over ash is evidence that a new substance formed.

Station 2 Copper Sulfate + Water

Observations	Chemical or Physical?
<ul style="list-style-type: none">clear waterblue crystal sits on bottomcrystal starts to dissolve	

Conclusion:

clue: dissolving property: solubility

Station 3 Iron nail in Copper Sulfate Solution

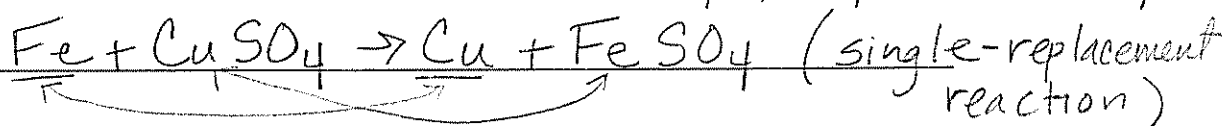
Observations	Chemical or Physical?
<ul style="list-style-type: none"> • bubble on head of nail • blue crystal dissolving 	

Sample - bright orange nail tip

• darker color / nail crumbling / Tin can - Copper floating in the solution.

Conclusion:

clues: bubble, color change / property: reactivity



Station 4

Egg shell + vinegar

Observations	Chemical or Physical?
<ul style="list-style-type: none"> • bubbling 	

Conclusion:

Just FYI... clue: bubbling property: reactivity
vinegar - CH_3COOH

calcium carbonate - CaCO_3

Station 5

Ice Cube Melting

Observations	Chemical or Physical?
<ul style="list-style-type: none"> • ice cubes • water forming around the ice 	

Conclusion:

clue: solid \rightarrow liquid property: state change

Station 6 BTB
(Bromothymol Blue) & Water

Observations	Chemical or Physical?
<ul style="list-style-type: none">• BTB + water becomes blue• Exhalation causes bubbles of CO_2 to form	

• Color changes from blue \rightarrow green \rightarrow pale yellow

Conclusion:

clue: color change property: reactivity
(color change)

Station 7 ^{whole milk} Milk + Vinegar

Observations	Chemical or Physical?
<ul style="list-style-type: none">• the milk curdled• the liquid vinegar & milk separate• vinegar smell	

Conclusion:

clue: solid formation property: reactivity
(precipitate forms)

Did not use in '09

Station 8 Hydrogen Peroxide + Yeast

Time (sec)	0	10	20	30	40	50	60
Temp (°C)							

* change to physical or chemical and discuss later (Ch. 4)

Observations	Exothermic or endothermic?
• temp increased • felt warm	Chemical

Conclusion:

clue: temperature change property: reactivity - (exothermic reaction)

Station 9 Water + Vinegar + Laundry soap + baking soda

Time (sec)	0	5	10	15	20	25	30
Temp (°C)							

* change to physical or chemical + discuss later (Ch. 4)

Observations	Exothermic or endothermic?
• temp. decreased • felt cold	Chemical

Conclusion:

clue: temperature change property: reactivity - (endothermic reaction)

Station 10 Lemon juice + filter paper + heat

Observations	Chemical or Physical?
<ul style="list-style-type: none">• Lemon juice disappeared on the filter paper• Writing reappeared in a brown color	

Conclusion:

clue: color change property: reactivity

Station 11 Bread or Cracker + Iodine

Observations	Chemical or Physical?
<ul style="list-style-type: none">• white bread turns dark blue - purple when iodine is added	

Conclusion:

⇒ Next time! When chewed - no color change

clue: color change property: reactivity

when chewed: no color change

An enzyme in saliva converts starch → sugar. Sugar does not react w/ iodine

Station 12

↳ BAKING POWDER + WATER

Observations	Chemical or Physical?
<ul style="list-style-type: none">• bubbling	

Conclusion:

clue: bubbling property: reactivity

Station 13 (HCl) Hydrochloric Acid + (CaCO_3) Chalk

Observations	Chemical or Physical?
<ul style="list-style-type: none">• yellow chalk bubbled and fizzed when drops of HCl were added	

Conclusion:

clue: bubbling / fizzing property: reactivity
→ water, CO_2 , CaCl

Station 14 Baking Soda + Vinegar
 (NaHCO_2) (CH_3COOH)

Observations	Chemical or Physical?
<ul style="list-style-type: none">• liquid sits at the bottom• Kleenex + baking soda sits 1/2 way in test tube• When shaken bubbles are produced• Cap comes off!	

Conclusion:

clue: bubbles property: reactivity
(gas is produced)
→ CO_2 + Water