# IEA - Data Enhancement Project

Questionnaire printing

Study: SC2

Population: 2

Instrument: STPR\_2

Student Science Test Lab Excercises (set 9A&B) Population 2

#### Experiment I

The diagram below represents an electric tester.

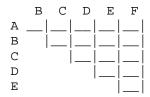
#### [ Picture ]

Use the materials given to make an electric tester.

- 1 What happens when the wires X and Y are connected? (Circle one.)
  - A The bulb lights.
  - B The bulb does not light.

Use the tester to check if an electric current flows between all the various pairs of terminals (A to F) on the circuit board.

Perform the tests and record the results in the table below. Use a plus (+) to indicate that a current flows and a zero (0) if no current flows. For example, if the bulb lights when wire X touches B and wire Y touches C, a (+) should be marked under C on line B. If the bulb does not light when B and C and connected, contact the test administrator.



- On the basis of the above experiment, which two of the following are possible ways the terminals are connected? (Circle two.)
  - [ 6 Pictures of possible ways the terminals are connected ]

PR2A101 PR2A102 PR2A103 PR2A101 PR2A102 PR2A103 PR2A101 PR2A102 PR2A103

## Experiment II

Phenolpthalein is a colorless indicator. When a few drops are added to a basic solution, the solution will turn pink.

Blue litmus paper turns red (pink) when dipped in an acidic solution.

Before you are three vials, labelled A, B, and C. One contains a basic solution, another an acidic solution, and a third, water. Use the colorless indicator and blue litmus paper to determine the contents of each vial.

Using the information above, what will you do to determine what

Begin by following the instructions below.

	CARRY	OUT Y	YOUR PLAN.					
2	Recor	rd you	r observati	ions in the	e chart be	low:		
				OBSERVATIO	ONS			
Sam	ple		Blue Li	itmus Pape:		Phenolt	thalein	
A								
В								
C								
3	On th	ne bas: owing o	is of the f questions: h sample co are your n	information	n in the cl	hart above		
3	On the	ne bassowing of Which What Which	is of the iquestions:	information ontains an reasons for	n in the classic so rethis concepts.	hart above lution? _clusion? _		

## Experiment III

It is suggested that starch could be added to a coffee creamer to make it appear thicker. One or more of the samples of creamer on the table contain starch.

Iodine solution is used to test for the presence of starch. Starch will turn blue-black in the presence of iodine.

1	Using the iodine solution, how would you find out which sample or samples contain starch? Outline your plan.
	CARRY OUT YOUR PLAN.
2	Record your observations.
Sam	ple Aple Bple C
3	What are your conclusions? What are the reasons for these conclusions?
	ple A
	ple Bple C

## Experiment I

Use the equipment before you to find the mass of the sinker. Then find the volume of the sinker. Now calculate the density of the sinker. Show all calculations and give the units you used to measure the mass and volume. Also give the units for density.

2	What is the volume of the sinker? Describe the procedure you used to find the volume of the sinker.
3	mass What is the density of the sinker? ( density = ) volume

#### Experiment II

#### [ Picture ]

Before you are a small cup of water and a piece of cut filter paper.

Bend the tabs with colored dots upward as shown in the diagram.

Next, turn the paper upside-down and place the four tabs into the small cup. (Be sure the colored dots are above the water surface.) DO NOT LIFT THE CUP.

1 By carefully turning the cup around on the table, determine if the coloring from each of the dots moves at the same rate. According to what you observe, circle the correct response below:

SAME RATE

DIFFERENT RATE

When the first color reaches the top of the paper, remove the paper and flatten it out on the table.

2 Describe what happened to the color of each dot.

Black dot

Red dot

Purple dot

Green dot

Give an explanation for what happened to the black dot.

PR2B201 PR2B202 PR2B203 PR2B204 PR2B205 PR2B201 PR2B202 PR2B203 PR2B204 PR2B205 PR2B201 PR2B202 PR2B201 PR2B202 PR2B201 PR2B202 PR2B201 PR2B202 PR2B201 PR2B202 PR2B201 PR2B205 PR2B205 PR2B205 PR2B201 PR2B205 PR2B20

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## Experiment III

Test-tape is an indicator that turns from yellow to green in the presence of a certain type of sugar.

Iodine is used as an inticator to test for starch. It will turn a starch solution blue-black in color.

Before you are three cups labelled A, B, and C. One contains a sugar solution, another a starch solution, and a third contains neither starch nor sugar.

Using the information above, what will you do to determine which cup

You are to determine the contents of each cup.

	CARRY	OUT I	THE EXPERIN	MENT.					
2	Record your observations in the chart below.								
				OBSE	ERVATIONS				
Cup	_		Test Ta				Solution		
A								-	
В									
C									
3	On th		s of the questions.	information	n in the ch	nart above	, answer tl	ne	
3	On th	wing q Which	questions. n sample co	information ontains sugreasons for	gar?		, answer tl	ne	
3	On th	Which What What Which	questions.  n sample co are your n	ontains sug	gar?	clusion? _	, answer tl	ne	
3	On th follo	Which What What Which	questions.  n sample co are your n	ontains sugreasons for	gar?	clusion? _	, answer tl	ne	