Shining a Light on

Name_____

Date _____

Coupled Inquiry

Step 1: Question – (cut the questions on page 2 into strips for this activity)

A. Sort questions into one of the following two groups:

Questions that can be answered by doing systematic observations or by doing an experiment.	Questions that can not be answered (not safe, materials not available, can not be answered by doing systematic observations or experiments.

B. Select a question to investigate. _____

_____

Step 2: Write your prediction or hypothesis._____

_____

PREDICTION	HYPOTHESIS
* Formulate a prediction if you can answer the question by conducting systematic observations.	* Formulate a hypothesis if you can answer the question by conducting an experiment. (If… then)

Step 4: If you are doing an experiment, list the variables.

Type of Variable	
Independent variable (manipulating)	
Dependent variable (responding)	
Controlled variable (constant)	

Step 5: Materials

Make a List (include size and amount)	Draw your set up

Step 6: Procedure – List steps

Steps for Procedure	Begin each entry with a "verb". These are actions.
1.	
2.	
3.	
4.	
5.	
Etc…	

Step 7: Test your hypothesis

Step 8: Record Observation & Data

Step 9: State Conclusion

Questions to cut into Strips to use in STEP 1

What would happen if a paper flower were put in a container of salt water?
What would happen if a plastic flower were put in a container of water?
How long does it take for a flower with 8 petals to unfold?
What is the perimeter of the hexagon in the center of a paper with 8 petals?
Do the petals of tissue paper flowers take less time to unfold than the petals of regular paper flowers?
Does the temperature of the water affect the time it takes for the petals of paper flowers to unfold?
How does the water make the paper flower petals unfold?
Why do the petals of a paper flower unfold?

Coupled Inquiry Rubric

CATEGORY	1 Insufficiently accurate, detailed, logical, complete	2 Somewhat accurate, detailed, logical, complete	3 Adequately accurate, detailed, logical, complete	4 Exceptionally accurate, detailed, logical, complete
Sorting Questions	Correctly sorted 0-2 questions that could and could NOT be answered using systematic observations or experiments.	Correctly sorted 3-4 questions that could and could NOT be answered using systematic observations or experiments.	Correctly sorted 5-6 questions that could and could NOT be answered using systematic observations or experiments.	Correctly sorted 7-8 questions that could and could NOT be answered using systematic observations or experiments.
Choosing a Question	Identified a question that could not be tested/investigated or one that did not merit investigation.	Identified, with adult help, a question which could be investigated.	Independently identified a question from 1 of the 8 questions provided which could be investigated.	Independently identified a question which was interesting to the student and which could be investigated.
Hypothesis or prediction	Needed adult assistance to develop an hypothesis or prediction. May have completed a basic literature review instead.	Independently developed a hypothesis or prediction which cannot be substantiated by a literature review or observation of similar phenomena.	Independently developed a hypothesis or prediction which can be somewhat substantiated by a literature review and observation of similar phenomena.	Independently developed a hypothesis or prediction which can be well-substantiated by a literature review and observation of similar phenomena.
Variables	Adult help needed to identify and define almost all the variables.	With adult help, identified and clearly defined which variables were going to be changed (independent variables) and which were going to be measured (dependent variables).	Independently identified which variables were going to be changed (independent variables) and which were going to be measured (dependent variables). Some feedback was needed to clearly define the variables.	Independently identified and clearly defined which variables were going to be changed (independent variables) and which were going to be measured (dependent variables).
Materials List	Materials were NOT listed or the list was incomplete.	Materials were listed without the size, amount, and type required for each material.	Materials were listed somewhat complete with the size, amount, and type required for each material.	Materials were listed complete with the size, amount, and type required for each material.
Description of Procedure	Procedures that were outlined were seriously incomplete or not sequential, even after adult feedback had been given.	Procedures were outlined in a step-by-step fashion, but had 1 or 2 gaps that require explanation even after adult feedback had been given.	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. Some adult help was needed to accomplish this.	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. No adult help was needed to accomplish this.
Conduction of Experiment	Experiment was not conducted or was conducted inadequately.	Experiment was conducted with only 1 trial.	Experiment was conducted correctly following each step of the written procedure and with 2 trials.	Experiment was conducted correctly following each step of the written procedure and with 3-4 trials.
Data Collection	Data was collected only once and adult assistance was needed to clearly summarize what was discovered.	Data was collected more than one time. Adult assistance was needed to clearly summarize what was discovered.	Data was collected more than one time. It was summarized, independently, in a way that clearly describes what was discovered.	Data was collected several times. It was summarized, independently, in a way that clearly describes what was discovered.