

*Name:*

*[](http://images.google.com/imgres?imgurl=http://z.hubpages.com/u/291658_f260.jpg&imgrefurl=http://hubpages.com/hub/Free-clipart-for-hubpages&usg=__tjRszYhp3aWfXJsncSe9V2yeDlU=&h=260&w=260&sz=5&hl=en&start=4&sig2=5P79tp6j2W7VObevhRbEdA&um=1&tbnid=aOfkLdInMOBvDM:&tbnh=112&tbnw=112&prev=/images?q=question+mark+clip+art&hl=en&rls=com.microsoft:en-us:IE-SearchBox&rlz=1I7ADBS&um=1&ei=OVN3St32IJSwlAflxsSBCA)“You know children are growing up when they start asking questions that have answers”. John J. Plomp*

**Question Everything!**

In order to learn about our world, we ask questions! Creating comparative questions helps us better investigate our surroundings because they can be easily “tested” and measured.

For example:

**Regular Question:** Do the fish like food?

***Comparative Question:*** *Which kinds of food do fish eat* ***MORE****: flakes* ***OR*** *pellets?* ***(What is being measured?)***

**Regular Question:** Where will kids sit on the first day of class?

***Comparative Question:*** *On the first day of class, will* ***MORE*** *kids sit in the front of the room* ***THAN*** *the back of the room?* ***(What is being measured?)***

**TIPS on writing a comparative question:**

* Key words to use when making a comparative question include: **“OR”, “MORE”, “LESS”, “BIGGER”, “SMALLER”, “HIGHER”, “LOWER”, “THAN”** or any other kind of comparable word.
* Comparative questions can usually be answered by ***testing*** them somehow.

**Practice: Make each of the regular questions into comparative questions. *Remember there is always more than one way to make them comparative!***

1. **Regular:** When do birds sing?

**Comparative: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2. **Regular:** Which teachers give homework?

**Comparative: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3. **Regular:** What happens when you drop alka-seltzer in water?

**Comparative: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Try your own: Write two TESTABLE, MEASURABLE comparative questions on your own.**

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*[](http://images.google.com/imgres?imgurl=http://dclips.fundraw.com/zobo500dir/magnificator.jpg&imgrefurl=http://www.fundraw.com/clipart/clip-art/00001659/Magnifying-Glass/&usg=__jToa7dBakL8nhxHIaKIbtTVumiw=&h=500&w=471&sz=32&hl=en&start=2&sig2=G8iE4wpwOJpCNOXW-R_WXQ&um=1&tbnid=ggykr5HEBlewMM:&tbnh=130&tbnw=122&prev=/images?q=magnifying+glass+clip+art&hl=en&rls=com.microsoft:en-us:IE-SearchBox&rlz=1I7ADBS&um=1&ei=6lN3SvbcJozflAeT9diBCA)“The moment one gives close attention to anything, even a blade of grass, it becomes a mysterious, awesome, indescribably magnificent world in itself”. Henry Miller*

**Paying Attention to Our Surroundings**

Choose a place to sit.

Observe: Watch. Listen. Smell. Make notes/drawings below about what you observe.

When you hear the call, create comparative questions about your surroundings. They can be about anything you are observing, remembering that you will be testing these with a partner. (ex. “*Do the smallest fish in the tank tend to travel alone or in groups?”)*

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**Investigate Your Question!**

**Question:**

With your partner, choose a comparative question that you would like to investigate. Write your question here:

**Measurement:**

What will you be measuring? **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Hypothesis:**

Write your prediction here. **Your** prediction may be different from your partner’s.

**The equipment we will need:**

**What we are going to do: Experiment Procedure (write as “Step 1,2,3”)**

**[](http://images.google.com/imgres?imgurl=http://www.appling.k12.ga.us/FDESWeb/images/InfoArt/clipb.gif&imgrefurl=http://www.appling.k12.ga.us/FDESWeb/info.htm&usg=__JvGC9-oiuBD3QAO7Onf-HfFuZ7Y=&h=226&w=227&sz=5&hl=en&start=9&sig2=BPPX6zRcdJZUCv5Y_usR5A&tbnid=UHk4eWWWiIOEFM:&tbnh=108&tbnw=108&prev=/images?q=clipboard+clipart&gbv=2&hl=en&ei=P1l3SqnoEcWflAfcssiBCA)Investigate Your Question!**

**Data/Observations: Create a data table that makes your observations more organized.**

**Graph: Create a graph that illustrates your data**

*[](http://images.google.com/imgres?imgurl=http://www.educatorsbookbag.com/store/images/ist2_263829_colorful_puzzles.jpg&imgrefurl=http://www.educatorsbookbag.com/store/index.php?main_page=product_info&products_id=5&usg=__bAQsjtxoUb-UTtLLhxv723D3UrU=&h=285&w=380&sz=23&hl=en&start=9&sig2=KSnBGGwMp5aeH1l-gegtcw&tbnid=YcwdSL2RM4vznM:&tbnh=92&tbnw=123&prev=/images?q=puzzle+clipart&gbv=2&hl=en&ei=IV53SqV8jYq2A-HzhNsE)“Arriving at one point is the starting point to another.”* John Dewey

**Concluding your Investigation**

Compare your **Data** to your **Hypothesis**. My prediction was \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**As a result of this investigation I learned:**

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**New questions that have arisen as a result of this investigation:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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Possible sources of **error (what affected the results)** in this investigation:

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Things that I could have improved in this investigation:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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**At the Shedd:** [**http://www.youtube.com/watch?v=bIg-DLBXh7A**](http://www.youtube.com/watch?v=bIg-DLBXh7A)

***Write a list of comparative questions that you may be able to test while at the Shedd Aquarium:***

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***What kind of equipment will be needed for these investigations?***

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**Homework:**

**Blog #1:** Watch the video at: <http://www.youtube.com/watch?v=wbNeIn3vVKM>

***Answer the following questions in numbered form (1, 2, 3 etc.)***

1. The Great Barrier Reef is considered the “largest\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on earth”.
2. What compound does coral extract from the ocean to make solid tentacles?
3. How does red algae impact the structure of a coral?
4. What year did the Great Barrier Reef become a national park?
5. What percentage of the reef is protected from fishing?
6. How old do scientists believe the CURRENT reef is? The ANCIENT reef?

**Blog #2:** The Marine Park Authority of the Australian Government has created several videos to educate the public on what they can do to help conserve the Great Barrier Reef. ***Watch the videos below and answer the following questions in numbered form (1, 2, 3 etc.)***

***Video #1: What is “Coral Bleaching”*** <http://www.youtube.com/watch?v=iW8nCALx5iA&feature=related>

1. What is a polyp? What does a polyp need to be considered “coral”?
2. What types of things are coral sensitive to in the ocean?
3. When does coral bleaching occur?
4. Why do scientists think that coral bleaching is occurring more now than ever?
5. List three ways people can reduce their impact to climate change?

***Video #2: Why should we care about climate change/destruction of coral reefs?*** <http://www.youtube.com/watch?v=Wcoyj2VPCOM>

1. How many species of: fish, hard coral, soft coral, sea birds, shore birds
2. What is responsible for warming our oceans?
3. How does increased flooding affect the reefs and the fish that birds that live there?
4. List three additional ways (not listed above) that people can reduce climate change:

**Video #3/#4: Educating children about the effects of climate change**

Watch the following two videos that are aimed at teaching children about the effects of climate change. <http://www.youtube.com/watch?v=RnqJMInH5yM&feature=related> <http://www.youtube.com/watch?v=aEdoizgeNJk&feature=related>

1. List two benefits and two drawbacks to using this kind of media to teach this information.
2. After watching these videos, use YouTube to find and ***POST LINKS*** to videos that you feel would be more beneficial to teach the following types of people and ***WHY!***
   * ***Adults from Australia***
   * ***Foreigners not from Australia***
   * ***Tourists visiting the Great Barrier Reef***