Introducing the IB Design Cycle

This presentation has been updated to include the IBO revisions to the IB Design Cycle, specifically the merging of the Investigate and Plan steps.
What is the IB Design Cycle?

The IB Design Cycle is a “model of thinking” used by International Baccalaureate students to help them create solutions in response to challenges. It employs four steps:

1. Investigate
2. Plan
3. Create
4. Evaluate

The cycle is recursive, allowing students to iterate through these steps as needed to refine their solutions.
Four Steps of the IB Design Cycle

1. Investigate
   - What problem do I want to solve? Investigate similar solutions.
   - What supplies will I need? Make list.

2. Plan
   - What will the final product look like? Sketch three prototypes. Choose one.

3. Create
   - Build/make/Construct prototype.

4. Evaluate
   - Test the solution. Did it turn out as planned?
   - Should I be doing Step #1 again? What variable should I change this time? If the solution is good, can I consistently recreate the same results?
**Investigate - Explained**

- **Investigate**: Consider possibilities and ideas. Explore resources, i.e. World Wide Web documents, books, magazines and materials or ingredients.

  - Questions to ask: Am I interested in this project? Do I have enough time to complete it? What is the purpose of this solution? What challenge will it solve?
    - Example: Goal is to make brownies.
    - Research online recipes at [www.foodnetwork.com](http://www.foodnetwork.com) to find a list of highly-rated recipes.
    - Bookmark potential recipes.
Investigate (continued):
Write a list of supplies or ingredients. Search the pantry/refrigerator/garage, etc. to find supplies.

- Questions to ask: Do I have the materials I need to create it at home or do I need to purchase them?
  - Example: Goal is to make brownies.
  - Write a shopping list of all required ingredients that you must purchase from the store.
  - Set out all of the tools to create the brownies.
    - Pan, bowl, spoon, oven

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**Plan:** Developing ideas for the project. Includes sketches of final outcome.

  - Example: Goal is to make brownies.
  - Sketch a diagram of the project design.
  - How do you want the brownies to look? Size, shape, thickness.
  - Theme: Frosting? Powdered sugar designs? Candy decorations? Special events, like American Flags for 4th of July?
Create - Explained

- **Create:** This is the implementation of Step #2 - Plan. The majority of the work will be done here.
  - Example: Goal is to make brownies.
    - Set the oven temperature.
    - Create the brownies according to the instructions.
    - Mix dry ingredients.
    - Mix wet ingredients.
    - Combine.
    - Bake.
    - Cool the brownies. Cut and decorate according to Step #3 – Design.
Evaluate - Explained

- **Evaluate**: This is where you reflect on your creation.
  - **Question to ask**: Did the final creation or outcome meet the specifications or requirements of the project?
    - Example: Goal is to make brownies.

Updated 08/15
These phases do not always follow a sequential pattern. Sometimes we must start over, sometimes we must jump ahead. The Design Cycle is fluid. It’s about the journey as much as the end results.
The IB Design Cycle requires the use of an IB Design Notebook and Folder.

- Spiral notebook, college-ruled (for note-taking)
- Two-Pocket Folder with prongs (for handouts and sketches)
Assignment

Learning to Use the IB Design Cycle in a Practice Scenario
Using the IB Design Cycle at the Academy

You will use the IB Design Cycle to complete your class projects.

Projects:
- CTEC6 - Create a CSS website
- CB91 - Create a college and career multi-media presentation
- CB92 - Create an Adobe Flash animated video
Before applying the IB Design Cycle to your class project, you will first **PRACTICE** using the IB Design Cycle by applying the four steps to a sample topic, **as if you were really going to create the project.**

In other words, you are going to create a PPT presentation to show **HOW** you would create the project, **but you’re not really going to create it.**
Possible Topic Choices

Use the IB Design Cycle to...

- Create a dance routine.
- Write a short story.
- Write a musical composition.
- Plan a birthday party.
- Learn to play a clarinet.
- Build a solar oven.
- Create a video game.
- Or think of your own school-appropriate topic...
To complete this assignment, you will complete the following steps (which are described in detail in Assignments Parts 1a and 1b on the following slides):

1. Select a topic (from my list or choose one of your own).
2. Sketch the IB Design Cycle in your IB Design Notebook and brainstorm your topic using the four steps. Research online.
3. Create a PPT presentation from your sketch. Notate the individual steps and provide a short explanation of each.
4. Submit the PPT presentation to Dropbox for grading.
5. Present the PPT presentation to the class.
IB Design Cycle Assignments

• Assignment – Part 1a
  1. Choose your topic from the list or one of your own.
  3. On the next page, make a list of all required steps, materials, etc. for each stage that you would need if you were really going to make this project.

• Assignment – Part 1b
  1. In Power Point, create a title slide. (See example: Using the IB Design Cycle to Grow a Flower Garden)
  2. Next, create a blank slide and use SmartArt to create the IB Design Cycle. Use text boxes to explain each step of the IB Design Cycle.
  3. Upload to the shared class folder in Dropbox. (See next slide for naming details).
  4. Present your slide to the class for evaluation.
How to Save the Assignment

- Save the file like this example...
  (Name of Class)

  Smith Susie CTEC6 IB Design Cycle Topic

  (Last Name First Name) (Name of Assignment)

- Upload (drag and drop) a copy of the file to your personal Dropbox folder.

  ...AND...

- Upload (drag and drop) a copy of the file to our class Dropbox shared folder.
# Grading Rubric - 20 Point Assignment

<table>
<thead>
<tr>
<th>Requirements</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
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<td>Investigate</td>
<td>Maximum effort. Legible, thorough. Meets all requirements and one or less omissions or errors.</td>
<td>Meets most requirements and 2 - 3 omissions or errors.</td>
<td>Meets some requirements and contains 4 - 5 omissions or errors.</td>
<td>Meets minimal requirements and contains 6 or more omissions or errors.</td>
<td>Did not include this step or submit assignment.</td>
</tr>
<tr>
<td>Plan</td>
<td>Maximum effort. Legible, thorough. Meets all requirements and one or less omissions or errors.</td>
<td>Meets most requirements and 2 - 3 omissions or errors.</td>
<td>Meets some requirements and contains 4 - 5 omissions or errors.</td>
<td>Meets minimal requirements and contains 6 or more omissions or errors.</td>
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<tr>
<td>Create</td>
<td>Maximum effort. Legible, thorough. Meets all requirements and one or less omissions or errors.</td>
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<td>Evaluate</td>
<td>Maximum effort. Legible, thorough. Meets all requirements and one or less omissions or errors.</td>
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<tr>
<td>Quality</td>
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Presentation is free of misspelled words, typos, and design flaws.
Example Assignment

Using the IB Design Cycle to Grow a Flower Garden

by Student

Updated 08/15
**Step #1:** Research different plants and their needs. Consider how much water, sun, shade, food, pest control and care they will need. When is the best time of the year to create this garden?

**Step #2:** Design the garden. Make a sketch of where the pathways are going and which plants are going where. Write where each plant is going based on their needs. Determine path of irrigation system.

**Step #3:** Time to get digging! Grab your trowel and wheel barrel and get busy according to your plan in Step #2.

**Step #4:** Reflect on your work. Does it look nice and smell good? Is it easy to manage? What are your favorite flowers? Are the plants healthy? Are they receiving enough water? Are insects or critters invading the garden?

(Cont.): Plan where and when you are going to plant the garden. Make a list of seeds, plants, flowers and supplies you will need to purchase.