



How can we improve the world with a digital solution?

1 Making Observations

Look around you; think about problems you see on TV or online in the areas of health, our planet, or education.

Action: Make a list of observations.

Things to think about:

- What kinds of problems are in the news?
- What kinds of problems do you see in your community every day?
- What kinds of problems do you hear your family/friends complain about?

2 Identify the Problem

Now that you have made observations, identify the main problem that could be the cause for the observation.

Things to think about: (For each observation)

- Why does the problem exist?
- What are some of the circumstances that could have led to the problem?
- Who is involved in causing the problem? Is this a problem that affects your community? Other communities?

3 Narrow Down Your Problem

Most problems can be solved, but some can be solved easier than others. Take a look at your list and try to pick your top three ideas in the areas of health, our planet, or education. You might want to do some research to determine which of your problems would have the best possibilities for a digital solution. Which interests you the most?

Action: Narrow your list of problems down to 2.

Things to think about: (For each problem) Which problem...

- Most interests you?
- Seems the most important to help solve?
- Provided you with the most facts during your research?
- Provides you with the best opportunity to use science to solve the problem?

4 Brainstorming Solutions

Now that you have narrowed down your options, you have to give some thought to possible digital solutions. For each of the problems try to develop at least two workable solutions. Keep in mind that we are looking for NEW, innovative digital solutions. A digital solution could include a phone application, computer program, robot, part of a robot (i.e. an appendage or sensor), heads-up display, drone, wearable technology, or any machine or piece of equipment that serves a practical purpose.

Action: Brainstorm ideas/solutions that will impact your problem.

- 4** Things to think about: (For each problem) What is a possible solution that...
- Best uses science/innovation?
 - Best involves something NEW?
 - Is solved using at least two computational thinking strategies?
 - Other questions may include:
What types of materials might you need to develop your solution?

5 Focus on One Idea

Now it is time to decide. Take a look at all of your ideas. Which one would have the greatest impact on people around you? Which seems the most interesting to work on? Which has the most promise for innovation and creative ideas? Which lends itself the most to being solved in a digital solution?

Action: Pick one idea for solution.

Things to think about:

- Which are you most interested in?
- Which seems to be the most feasible?
- Which solution involves the most creative idea for an invention?
- Which solution is best solved using a digital solution?

6 Elaborate on Your Idea

Action: Describe in detail your solution to the problem.

Things to think about:

- What is the population being served?
- What are at least three benefits of your digital solution?

7 Research

Gather as much information as you can about the problem. Has anyone else tried to solve this problem? What are some other digital solutions that have been tried? Have they worked? Why or why not?

Action: Keep notes about your research.

Things to think about:

- What other solutions to this problem have been tried? (if any)
- Why do you think your solution will work?
- How will the solution you propose help solve the problem?
- What challenges or problems might exist with your solution? How might you overcome them?

8 Your Plan

Develop a plan to bring your digital innovation to life.

Your plan must:

- Describe a problem in an area of Health, Our Planet, or Education
- Explain how a digital solution solves a local, national, or global issue;
- Identify the population being served;
- Explain at least three benefits of the digital solution; and
- Present thinking and planning using computation thinking tools, highlighting at least two computational thinking strategies.

- 9 Pitch idea** in a 1-2-minute video or written explanation with supporting planning tools and illustrations.

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