

# Design Thinking for a Better World

## TEACHER'S GUIDE

Increasingly, students are being asked to be active citizens in their communities. Efforts are being made in schools to foster activism and the belief that one person is capable of making a difference in their communities. The *Design Thinking for a Better World* series tackles these objectives by introducing youth and teen readers to an innovative strategy for change-making: the design-thinking process. This process is based on human-centered problem solving. It requires problem solvers to use empathy to see a problem from a specific individual or group's perspective and, using brainstorming, feedback, and reflection, design a solution that solves the problem in a way that meets that individual or group's needs. Design thinking can be used to tackle all kinds of problems—from those at the individual level to problems affecting all people on Earth.

The Design Thinking for a Better World Teacher's Guide includes lessons that prepare teachers to integrate design thinking into their classrooms. The lessons include cross-curricular connections which allow the concept to be integrated into a filled curriculum schedule. Lessons in this guide support students' understanding of the process and of the skills needed to be successful in iterating it, such as empathy and reflection skills. The lessons are inquiry-based, and include the integration of technology and engineering skills. Students completing these lessons will build growth and maker mindsets by working toward solutions in non-linear ways.

The lessons in this guide are aligned to grade 5 to 8 expectations and are designed to be followed in a sequential manner, which scaffolds understanding as they work through implementing the design thinking process in different contexts. Single lessons can also be pulled to teach independently. Each lesson is accompanied by reproducible worksheets and assessment tools. The titles in *Design Thinking for a Better World* include:

*Designing Healthy Communities*  
*Designing Inclusive Communities*  
*Designing Green Communities*  
*Designing Positive School Communities*

# PACING CHART AND VOCABULARY

Lesson Plan Title	Pacing	Vocabulary
Exploring Empathy: What Makes a Design Thinker?	1-2 class periods*	change-maker character design-thinking process empathy grit growth mindset problem-solving skills resilience traits
Designing a Solution in My School Community	2-3 class periods	define design design-thinking process empathize ideate perspective plan prototype reflect school community solution test user
Thinking Big	4-5 class periods	define design-thinking process empathize ideate local, national, global community perspective plan prototype reflect solution test user
The Power of the Process: Reflecting on My Solution	3-4 class periods	impact reflect represent visual * any subject-specific vocabulary taught throughout unit

\* 1 class period = 40-60 minutes

# ACCOMMODATION STRATEGIES

Accommodations provide equal access to learning and equal opportunity to demonstrate what is learned. Accommodations allow a student access to the subject or course without any changes to the knowledge and skills the student is expected to demonstrate.

Educators are encouraged to adapt the instructional approach, activities, and assessments included in this guide to best meet the diverse interests, needs, and abilities of their students. Possible accommodations may include:

## Instructional Strategies

- Break tasks into parts with accompanying time lines
- Provide extra time for processing of oral information
- Pair oral instructions with visual ones (writing or symbols)
- Pre-teach new vocabulary and regularly review previously taught vocabulary
- Provide model of completed work
- Frequently check with the student to get him/her started
- Provide oral and visual instructions and examples
- Provide a checklist of tasks for the student

## Environmental Strategies

- Proximity to teacher
- Strategic seating
- Flexible or mixed-ability grouping
- Provide an alternative setting for learning that is free from visual and auditory distractions

## Assessment Strategies

- Build in extra time to allow student to process questions asked and answers given
- Provide written instructions and rubrics for assignments
- Offer a choice of assessment activities so that the student can choose one suited to their strength
- Space out or extend assignments to prevent student feeling overwhelmed
- Reduce the number of tasks used to assess skill or concept
- Allow students to use assistive devices or technology

# LESSON 1

## Exploring Empathy: What Makes a Design Thinker?

### Curriculum Correlations

#### Common Core State Standards

Grades 5 to 8 Reading  
CCSS.ELA-LITERACY.RL.5-8.2  
CCSS.ELA-LITERACY.RL.5-8.4  
CCSS.ELA-LITERACY.RL.5-8.6  
Grades 5 to 8 Writing  
CCSS.ELA-LITERACY.W.5-8.3

#### Ontario Language Arts Expectations

Grades 5 to 8 Reading  
Overall expectation 1  
Grades 5 to 8 Writing  
2.5, 3.4, 3.5

### Materials

- *What Makes a Design Thinker? Exit Card*
- *Empathy Activity Worksheet*
- *Design Thinking for a Better World* series
- Blank paper and markers
- *Empathy Reading and Writing Checklist*
- Internet and projection tool, for video
- Photocopies of a story from *Design Thinking for a Better World* series
- Photocopies of “Elena” by Pat Mora:  
<https://bit.ly/2Pj9usT>
- Photocopies of “My Empathy Experience” example
- Pictures that tell a story about perspective.  
Suggested pictures at this link: <https://bit.ly/2n59Yz>

### Objectives

Students will:

- Understand, define, and exemplify empathy.
- Use reading and writing skills to identify perspective and show empathy.
- Understand the design-thinking process and the empathy skills at its core.

### Setting the Stage

Prior to this lesson, it would be useful for students to be familiar with *Design Thinking for a Better World* series. They could have been assigned the books as independent reading, or teacher could facilitate the reading of each book in small groups previous to this lesson.

Review pages 4-5 in any *Design Thinking for a Better World* title. Have a class discussion:

- What are the goals of the design-thinking process?
- How is design-thinking used in the real world to make change?

Review pages 6-18 in any *Design Thinking for a Better World* title. Have a class discussion:

- What are the steps of design thinking?
- What are the most important parts of the process? **Lead students to say that empathy is at the core of design thinking; it is what sets the process apart.**

Play the following video for students. Kid Engineer: Wearable Technology. Joseph uses technology to make a “smart” shirt that allows people to be more independent and self-reliant. <https://www.youtube.com/watch?v=RthMeJEDsls>

Explain to students that while they are watching the video, they need to jot down any character traits that they feel describe a design thinker. Ask them prompting questions:

- For a person to be successful using the design-thinking process, what skills do they need to build?
- What traits should design thinkers possess?

It would be useful to write the questions on the board or display them, so students can refer to them while they watch the video.

After students have watched the video and jotted down their thoughts, split them into groups of four or five and give each group a set of chart paper and markers. Students will brainstorm as a group and write down design-thinker traits on a piece of chart paper. They will create a “What Makes a Design Thinker?” poster to be displayed on one wall of the classroom, throughout the unit on design thinking.

Set a 15-minute time limit for the brainstorming session. Then invite each group to tape their poster on the wall. Give students 5 minutes to browse all the other posters. Then hold a class discussion about the question:

- What makes a design thinker?

## Activity

Explain to students that empathy is at the core of the design-thinking process. It is essential that any design-thinker has strong skills in learning how to empathize with their user.

Students will take part in an empathy-building lesson by visiting different work stations and completing an activity at each station.

Prior to the lesson, set up four stations around the classroom.

Students should work in pairs and visit all four stations.

Approximately four pairs will work at a station at a time.

There should be enough copies of each activity at each station to accommodate for all students in the class.

Hand each student the *Empathy Activity Worksheet*.

They need to bring the worksheet around to each station and complete the corresponding section at each station.

### Station 1: In Their Shoes

- Copies of any story from *Design Thinking for a Better World* series.
- Students read the story and answer the questions on the *Empathy Activity Worksheet*.

### Station 2: Character Creation

- Three to five different pictures that tell a story about perspective.
- Suggested pictures at this link: <https://bit.ly/2n59Yz>
- Students choose one picture and, on the *Empathy Activity Worksheet*, write a short paragraph about the person in that picture, from their perspective.

### Station 3: Empathy Map

- Copies of the poem "Elena" by Pat Mora: <https://bit.ly/2Pj9uT>
- Enough blank paper and markers for each group to complete activity.
- Students read the poem and in their pairs, use the blank paper and markers to create an empathy map. On the map, they will write words that come to their mind about the perspective of the person in the poem.

### Station 4: My Empathy Experience

- Copies of "My Empathy Experience" example. An example is provided to the right.
- Students read the "My Empathy Experience" example and create their own example on the *Empathy Activity Worksheet*.

### My Empathy Experience

*A time someone showed me empathy was when I was feeling very nervous for an upcoming test. I felt very overwhelmed the night before the test. When I left the dinner table without having any dessert, my Dad wondered what was wrong. He asked me if I was feeling okay, and what was going on. He asked how I was feeling about my test. The actions my Dad used to show me empathy were asking me questions and listening carefully to my answers. When I spoke, my Dad listened and asked me further questions about what I was saying. He told me that he wanted to understand how I was feeling. When my Dad showed me empathy, I felt calmer and happier. I felt that my Dad listened to me and really cared about what I was saying. When he listened to me and helped me address the problem, I felt hopeful about my test. With my Dad's help, I was able to focus on the most important concepts and studied more thoroughly.*

## Extensions

- Teacher may choose to travel to the stations with certain students to provide support. Teacher may also conference with students and guide them in the activities.
- Teacher may invite students to create their own "empathy station" that would help their fellow classmates develop their empathy skills.

## Wrap-Up

Hold class discussion about the activities. Ask students what they learned at each station. Discussion prompts might include:

- What is empathy?
- How did the activity help you understand what empathy is?
- Why is empathy important in the design-thinking process? Why is it important in our day-to-day lives?
- In what ways did you build your empathy skills during the activities today?

Hand students *What Makes a Design Thinker? Exit Card*. Have them complete the card and hand in for formative assessment.

## Assessment

Assess student participation during lesson and work stations using anecdotal notes. Use *What Makes a Design Thinker? Exit Cards* for formative assessment of concepts in the lesson. Collect *Empathy Activity Worksheet* and use *Empathy Reading and Writing Checklist* to assess the worksheets for reading and writing standards.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Empathy Activity Worksheet

### Station 1: In Their Shoes

Read the story about an issue faced by a specific person, called a user. Carefully examine their perspective and answer the questions below.

1. What problem does the user face? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. How does the problem make the user feel? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. How might you feel, if you were the user? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. How might you feel, if you were the user? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Station 2: Character Creation

Choose one photograph at the station and examine it closely. Then get creative! Write a short paragraph from the perspective of the person in the photograph. What is going on for them in the photograph? How are they feeling about it?

\_\_\_\_\_

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## Empathy Activity Worksheet

Continue your Station 2 paragraph here, if you need more space.

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### Station 3: Empathy Map

Read the poem "Elena" by Pat Mora.

On a blank piece of paper, create an empathy map with words that describe the perspective of the woman in the poem.

### Station 4: My Empathy Experience

Show you understand empathy by writing about a time that someone else showed you empathy.

Read the example provided as inspiration.

A time someone showed me empathy was when \_\_\_\_\_

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The actions they used to show me empathy were \_\_\_\_\_

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When they showed me empathy, I felt \_\_\_\_\_

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Student name: \_\_\_\_\_ Date: \_\_\_\_\_

### Empathy Reading and Writing Checklist

Expectation	Met	Not Met
In their answers to the station one questions, student showed reading comprehension skills that meet grade-level expectations.		
Student shows understanding of perspective in character creation writing activity.		
Student uses effective writing techniques, descriptions, and event sequences in paragraph for character creation activity.		
Student uses correct sentence structure, grammar, and appropriate vocabulary in character creation writing activity.		
Student identifies their point of view in writing by reflecting and telling a story about their personal experience with empathy.		

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_



# LESSON 2

## Designing a Solution in My School Community

### Curriculum Correlations

#### C3 Framework

D1.4.6-8.

D4.6.3-5.; D4.7.3-5.; D4.7.6-8.; D4.6.6-8.; D4.8.6-8.

#### Ontario Social Studies

Grade 5: People and Environments: The Role of Government and Responsible Citizenship

B1.2, B1.3

B2.1, B2.2, B2.4

B3.8, B3.9

### Materials

- Devices with Internet access
- Projector for video
- Post-it notes
- White board or chalk board with markers or chalk
- *Designing Positive School Communities (Design Thinking for a Better World)*
- Photocopies of pages containing “Meet a Change Maker” feature from *Designing Positive School Communities (Design Thinking for a Better World)*
- *A School Community Solution Worksheet*
- *A School Community Solution Self-Assessment*
- *School Community Solution Formative Checklist*

### Setting the Stage

Teacher may choose to ensure that students have read *Designing Positive School Communities*, in the *Design Thinking for a Better World* series.

Review steps in design-thinking process with students. Use pages 6 to 18 of *Designing Positive School Communities* as reference. Together with students, create a class anchor chart with each of the steps of the process. Teacher may:

- Invite students to identify each of the steps and write them on an anchor chart.
- Place a blank diagram on chart paper (see page 6 of *Designing Positive School Communities*) and invite students to come up to write the steps in blank spaces.

Write a short, class created definition or explanation of each step and add to anchor chart.

There are 5 “Meet a Change Maker” features in *Designing Positive School Communities*. Divide students into five groups of approximately 5 or 6, or 10 pairs/groups of 3.

Each group gets a photocopy of a different “Meet a Change Maker” feature. Each student gets two Post-it notes. Give groups/pairs 5 to 10 minutes to read the story of a change maker. On each Post-it, students should individually write short answers to the questions:

- Post-it 1: How did the change maker make their school a better place?
- Post-it 2: How were you inspired by the change maker?

Write the questions on the white board or chalk board—ideally, on opposite sides. Invite students to stick their Post-it notes beside or near the corresponding question on the white board or chalk board.

Invite students, in groups, to visit the front of the room and read their classmates’ responses. Groups waiting to visit the board should speak quietly in their groups.

Hold class discussion about the change-maker activity. Teacher may use prompts such as:

- Tell me about the change maker you read about.
- What stood out about the change maker’s story?
- How did the change maker use empathy to design a solution?
- How did the change maker make their school a better place?
- What character traits did the change maker possess that helped them design their solution?
- How were you inspired by the change maker?

### Objectives

Students will:

- Display the skills and characteristics of a design thinker to identify a problem that affects a member of the school community.
- Use empathy to understand the specific perspective of a user in their school community.
- Use the design-thinking process to find a user-centered solution.

## Activity

Remind students that by using the design-thinking process, they can become change makers in their school community!

Show students the following video, which looks at school solutions designed by members of PBS's design squad. <https://bit.ly/2qET4fC>

- To inspire students further, teacher can show the more in-depth video on designing reading pods for students: <https://bit.ly/20Aztqq>

Tell students that they will design a **plan or design** for a simple solution that will make their school community a better place.

*This is a smaller-scale project that is meant to give students a taste of the design-thinking process. Students will not be physically creating their solution, but creating an idea for a solution that they will design and review with their user.*

Teacher may choose to structure this project in a few different ways, to ensure students stay on-track.

- Give students time to consider a challenge that they encounter at school. Each student will then meet with another student in their class, and learn about the challenge they face. The other student will be their user.
- If students participate in a buddy program with younger students at the school, and participants are willing, student could design a solution that solves a problem faced by their buddy.
- Students could participate in a school-to-school program in which they pair with a student in a classroom at a different school, and design a solution that solves a problem they face at their school.
- With the blessing and participation of others in the school community, offer students the freedom to interview school community members (teachers, fellow students, office staff, parents, coaches, janitorial staff) and choose their user.

When students have chosen their user and learned about the challenge they face, they need to conference with the teacher to run through their choice. Teacher will check that students are on track. Ensure that students' plans are realistic and doable within a specific time frame of two class periods.

When teacher approves of student's choice and direction, they will hand students the *A School Community Solution Worksheet*. This worksheet will guide students through the process as they design a solution for their user.

Give students two class periods to use the worksheet to make a plan or design for a solution that will work for their user. They can use their devices, the school or classroom library, and teacher direction to conduct research.

- Period 1: Give students time to complete their designs or plans
- Period 2: Allow students to conference with their user to get their feedback on their design. Allow students time to revise their design or plan based on the feedback.

## Extensions

- Have students go through another iteration of the process to improve their design, based on feedback.
- To extend the project itself, have students create physical models of their solution and provide them to the users.
- As a class, think about ways that we can make our classroom a better place. Invite students to create a class mission statement, complete with strategies about how they will make their classroom a better place.
  - ▶ This activity should extend on what was learned about the design-thinking process to consider the problems our peers face and how we can use empathy to solve them.  
For example: I would make our classroom a better place to learn by avoiding making loud sounds and distracting my peers.

## Wrap-Up

Complete the "Reflect" stage of the process together as a class. Hold a class discussion asking students to reflect on the process and how well their solution met the needs of their user.

Remind students that although the time constraints mean that we have not done so, the design-thinking process is iterative and can be repeated as many times as needed until the solution best meets the user's needs. Ask students to consider how they might repeat the process to create an even better proposed solution for their user.

Hand students *A School Community Solution Self-Assessment* and have them complete and hand in for assessment. Have students hand in their worksheets and finished plans/designs for solutions.

## Assessment

Assess students' comprehension of the process using the *A School Community Solution Self-Assessment*. Use the *School Community Solution Formative Checklist* to assess students during conferencing, and on their worksheets and finished plans/designs for solutions.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## A School Community Solution Worksheet

My user is \_\_\_\_\_

The problem my user is facing is...

### In their words

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### As I understand it

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When they face this problem, my user feels...

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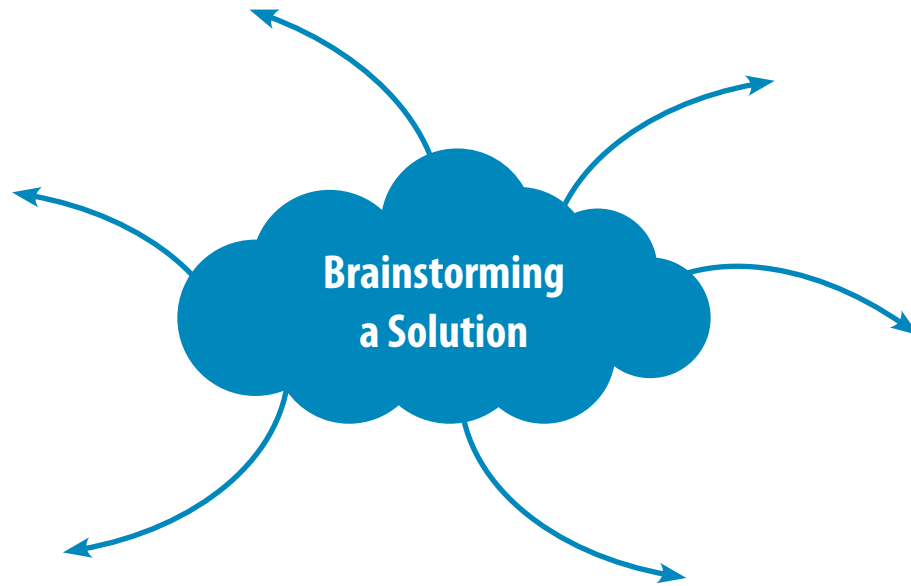
I can define the problem by completing this sentence:

\_\_\_\_\_ feels \_\_\_\_\_

because they \_\_\_\_\_ .

## A School Community Solution Worksheet

My ideas for solutions are:



I can choose my best idea by...

- Ranking my ideas based on how well I think they will meet my users' need.
- Putting my ideas in different categories: easiest, most difficult, long-shots, cheapest, more fun
- Asking peers to evaluate my ideas

My best idea is: \_\_\_\_\_

My idea meets my user's need by: \_\_\_\_\_

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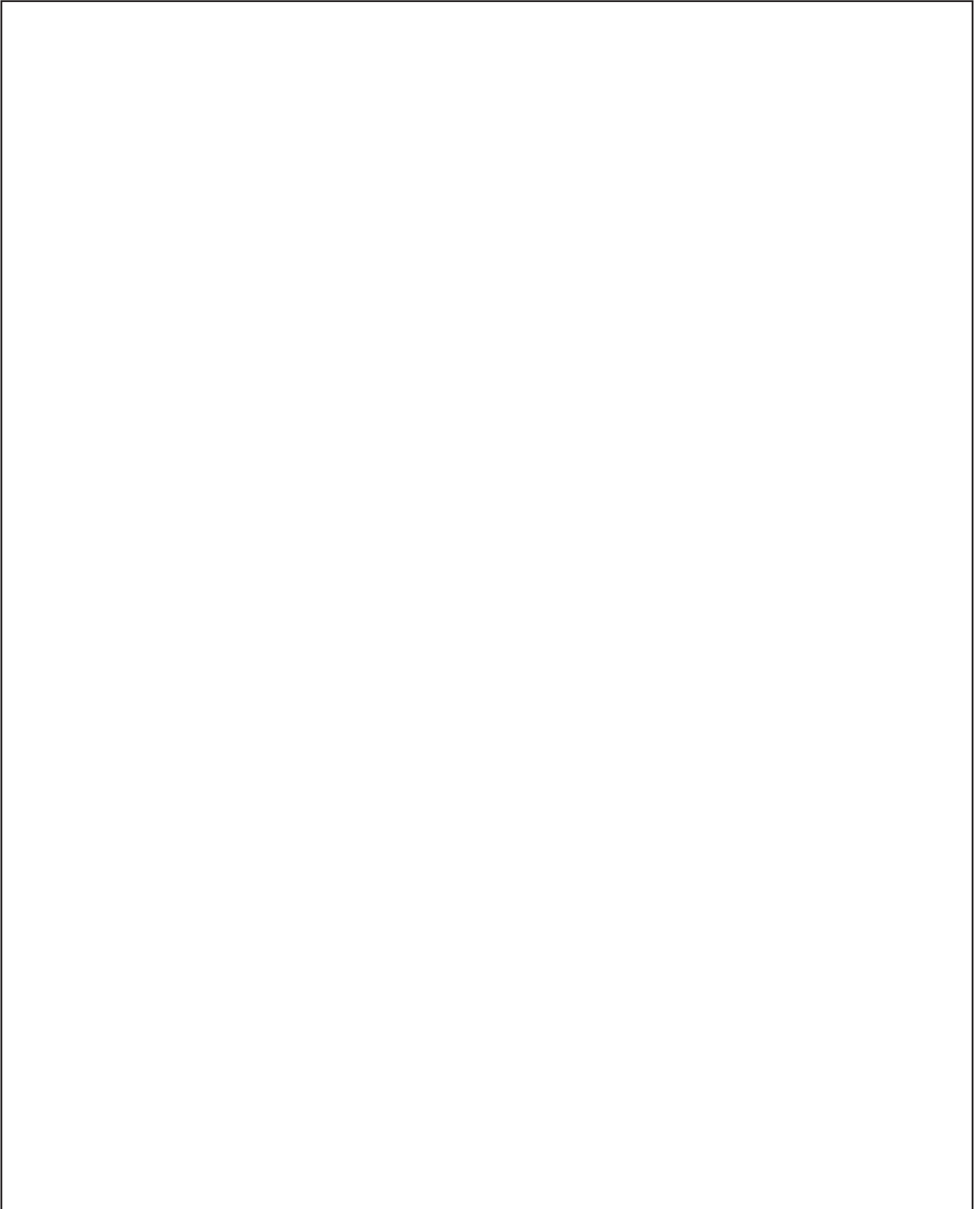
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## A School Community Solution Worksheet

Write words and draw pictures that explain or show your plan or design. You will show this plan or design to your user.

A large, empty rectangular box with a thin black border, intended for students to write and draw their solutions.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## A School Community Solution Self Assessment

Describe one way you used empathy to learn about your user's perspective.

How did the design-thinking process help you plan to make a difference in your school community?

What is something you might do differently in another iteration of the process?

Could you modify any elements to make sure your solution better meets your user's needs?

Student name: \_\_\_\_\_ Date: \_\_\_\_\_

### A School Community Solution Formative Assessment

Expectation	Met	Not Met
Using empathy, student formulated and asked questions to understand the perspective of their user and accurately define the problem from their perspective.		
Student gathered information about the problem and showed understanding about how the design-thinking process can help create solutions.		
Student brainstormed multiple solutions to the problem and accounted for different possibilities and outcomes before choosing a final solution.		
Student designed a realistic plan/design for a solution and depicted that plan/design using words and visuals.		
Student conferenced with their user and, using that feedback, reflected on how they could change their solution to better meet the user's needs.		
Student reflected on their capacity to affect change in their school communities, using the design-thinking process.		

Notes: \_\_\_\_\_  
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# LESSON 3

## Thinking Big

### Curriculum Correlations

#### C3 Framework

D1.4.6-8.

D4.6.3-5.; D4.7.3-5.; D4.7.6-8.; D4.6.6-8.; D4.8.6-8.

#### Ontario Social Studies Expectations

Grade 5 People and Environments: The Role of Government and Responsible Citizenship

B1.2, B1.3

B2.1, B2.2, B2.4, B2.6

B3.8, B3.9

Grade 6 Heritage and Identity: Communities in Canada Past and Present

A1.4

A2.2, A2.4, A2.5, A2.6

A3.3, A3.9

Grade 6 People and Environments: Canada's Interactions with the Global Community

B1.3

B2.1, B2.2, B2.4, B2.5, B2.6

### Materials

- Projection tool for videos
- Materials to build models with, including cardboard boxes, popsicle sticks, pipe cleaners, tape, clay, poster board, Styrofoam, etc.
- Books in *Design Thinking for a Better World*
- *Design-Thinking Process Graphic Organizer*
- *User Feedback Form*
- *Sharing My Solution Exit Card*

### Objectives

Students will:

- Build on their design-thinking skills and knowledge of the process to design a user-centered solution in their wider communities.
- Understand the perspective of a specific member of a group within their local, national, or global community.
- Recognize the changes and challenges faced by their local, national, or global community.

### Setting the Stage

Pique students' interest by showing them one or both of the examples of design-thinking in communities. <https://to.pbs.org/2QrPQXP>

After watching the video(s), ask students:

- **Video 1:** What challenges does Ryan face in his day-to-day life? What solutions did you notice Ryan using to overcome his challenges?
- **Video 2:** What feelings or thoughts did you notice one or all of the users expressing? How was the solution in the video user-centered?

Invite students to share their answers and have a class discussion about the videos.

Place students in pairs or small groups and ask them to take five minutes to brainstorm answers to the following question:

- What are some examples of innovative solutions that solve problems in our local, national, or global communities?

### Activity

Explain to students that it is time to Think Big!

In small groups of 3 to 4, they will use the design-thinking process to design a solution to a problem in their local, national, or global community.

Tell students that they will share their solutions with the school or local community after the project is complete.

Teacher may need to review the design-thinking process with students. Refer to anchor chart previously created.



Depending on class interest and ability, or on availability of participants, there are some options teachers can use to get students started on the design-thinking process.

- Bring in a willing community member who is experiencing a problem and have them tell their story to the class. Have students take notes while the community member is speaking and invite students to all come up with a solution to that person's problem.
- Instruct students to choose a case that interests them in *Design Thinking for a Better World*. This option may not have a direct community connection, but it still offers students the ability to practice the design-thinking process to solve a bigger issue.
- For more freedom: Hand students the books in *Design Thinking for a Better World*. Instruct them to read the project chapters in each book—pages 20 to 42—and use them as inspiration to decide on an issue to investigate in their local, national, or global communities.

When students have chosen their user and learned about the challenge they face, they need to conference with the teacher to run through their choice. Teacher will ensure that students are on track. Make sure that students' plans are realistic and doable.

When groups have chosen a problem and user, hand them the *Design-Thinking Process Graphic Organizer*. This will assist them in completing the process. Prompt groups to use devices, library books, and *Design Thinking for a Better World* series to research their user and the problem they face.

#### **Instructional Procedure:**

- Give students two or three periods to follow the empathize, define, ideate, and prototype stages. Teacher should conference with each group as they work on each step, to hear their understanding of the process and ensure they are on the right track.
- When students reach the prototype stage of the process, they need to draw a picture of their solution and build a model of the solution.
- For the test stage of the process, they will pair up with another group. Each group briefs the other about their user. Then, they test the other group's model thinking from the perspective of that group's user. They will fill out the *User Feedback Form* to give feedback about the model.
- Give students one or two more periods to complete the process and improve their solution in any way.

#### **Extensions**

- Have students go through another iteration of the process to improve their design, based on feedback.
- Share solutions with the local community by creating a class blog featuring all of the solutions created by the class.
- Have students create a journal entry reflecting on the process.
- Try a write-in-role activity in which students take on the role of their user and explain the problem they faced, and how the solution helped fix the problem.

#### **Wrap-Up**

When solutions are complete, hand students the *Sharing My Solution Exit Card*. Each student needs to fill in the sheet. They will keep the sheet with them as they share their solutions with members of the school community.

Have groups set up their solutions in stations around the classroom.

Invite other members of the school community to enter the classroom and view the solutions created by students. Also give students in the class an opportunity to view each other's solutions.

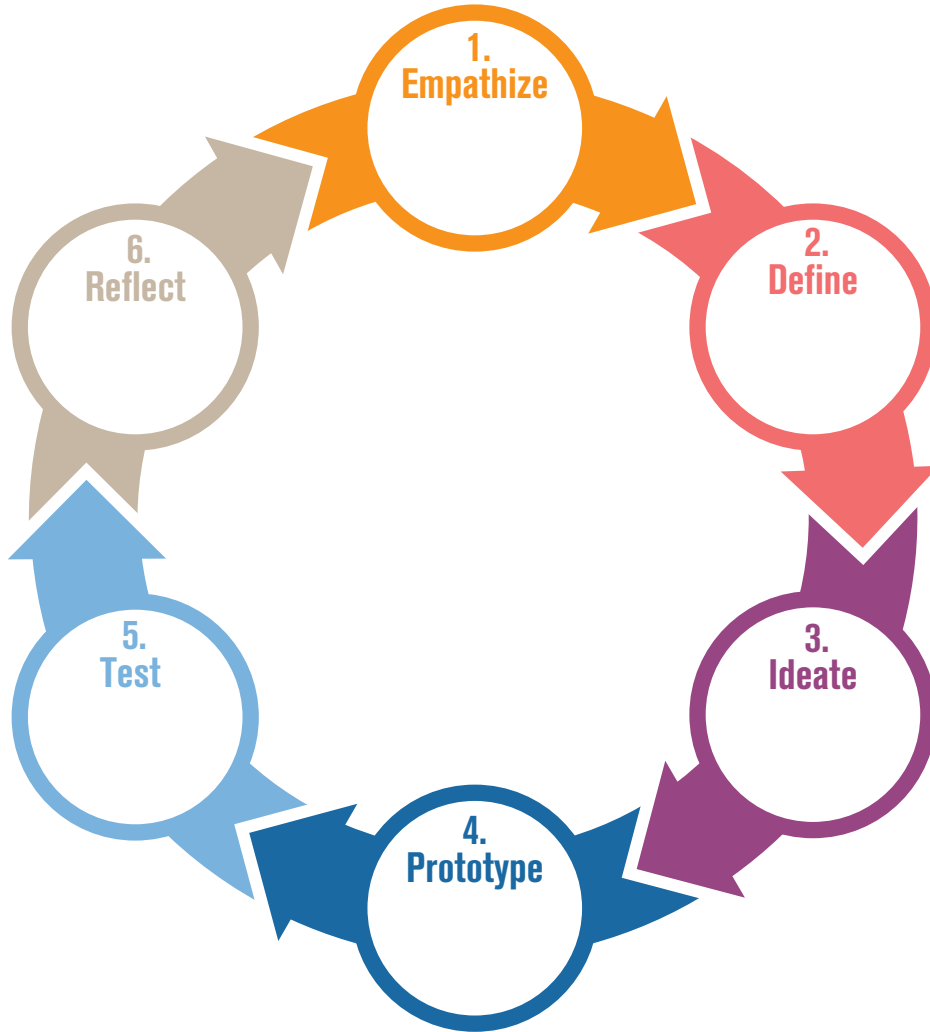
Instruct those viewing the stations to ask the questions on the worksheet. Can provide the questions to others in advance, or post them in the classroom.

Have students hand in their *Sharing My Solution Exit Card* at the end of the project.

#### **Assessment**

Use anecdotal notes to assess student knowledge and participation during activity. Make notes on student responses during conferencing and during station presentations. Assess *Sharing My Solution Exit Card* for student understanding of the process.

### Design-Thinking Process Graphic Organizer



**Empathize**

How does my user feel? What are their needs?

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**Define**

My user feels \_\_\_\_\_

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because they \_\_\_\_\_

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**Ideate**

**My ideas for solutions are:**

**Prototype**

**A drawing of my solution is:**

*After you draw your final prototype, you need to build a model of it to show your user.*

**Test**

**A summary of my user feedback is:**

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**Reflect**

**How well did the solution meet my user's needs? Should I make any changes?**

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## User Feedback Form

Group evaluating: \_\_\_\_\_

I am evaluating from the perspective of . . .

*(In your own words, describe the user's perspective as described by your classmates)*

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The problem I am facing is . . .

*(In your own words, describe the user's perspective as described by your classmates)*

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The proposed solution for my problem is . . .

*(Using your own words and/or pictures, describe the solution the group is proposing.)*

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## User Feedback Form

The solution meets my needs by...	My needs that are not met by the solution are...

One thing I like about the solution is . . .

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One improvement I would make is . . .

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My last thoughts or concerns are . . .

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Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Sharing My Solution Exit Card**  
**/10**

What was the problem, from your user's perspective? How did it make your user feel? **/2**

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How did your solution meet the needs of your user? Please give at least two specific examples that show how your solution solves your user's problem. **/5**

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Reflect on the process. How did it help you design a solution? Would you change anything to better meet your user's needs? How is the process a tool for change? **/3**

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# LESSON 4

## The Power of the Process: Reflecting on My Solution

### Curriculum Correlations

#### C3 Framework

D4.7.6-8.

#### United States National Core Arts Standards

Creating: Anchor Standard 2

#### Ontario Social Studies Expectations

Grades 5 and 6: People and Environments

B2.6

#### Ontario Arts Expectations

Grades 5-8 Visual Arts

Overall Expectation D2

### Materials

- Devices with Internet access
- Small whiteboards with dry-erase markers—one per student
- Presentation-creation tools such as Power-point or Prezi
- Poster materials such as a board, markers, etc.
- Art materials including colored pencils, markers, paint, clay, paper, canvas, etc.
- *Reflecting on the Process Rubric*
- *Reflecting on the Process Worksheet*

### Objectives

Students will:

- Reflect on the design-thinking process and identify how well their solution met the needs of their user.
- Use art and communication skills to present their reflection process in a visual medium of their choice.

### Setting the Stage

\* This lesson is designed to follow a lesson in which students have completed the design-thinking process. The suggestion is that this lesson follows Lesson 2 or 3 in this guide.

Hand each student a small whiteboard and dry-erase marker. Instruct them that they need to use words or pictures to answer some questions or prompts, then hold up their answers on the whiteboards.

Prompt students:

- Write one word that describes how you felt about your experience with the design-thinking process.
- Use words or pictures to show the strongest emotion you think your user felt at the time you learned about their problem.
- Use words or pictures to show the strongest emotion you think your user felt after you created a solution that addressed their needs.

Hold a short discussion about the whiteboard activity.

- What did students take from the activity?
- How did reflecting on the user's experience help you see the process in a different way?
- Why is it important to reflect on the process?

**Take-away concept:** It is important to reflect on the design-thinking process because reflection is the way we can decide whether the solution was effective in meeting the needs of the users. By reflecting, we can improve our solution to better suit the user.

## Activity

Explain to students that they will reflect on their experience with the design-thinking process by answering some questions. Then, they will use pictures and words to create a visual representation of their reflection, and experience with the process.

Students will complete *Reflecting on the Process Worksheet* to guide their creation of a visual representation of their experience.

When students have finished their worksheet, instruct them that they will use a medium of their choice to represent their reflection. They will need to present their reflection to the class or display it for others.

The visual representation can be broad and varied in scope, but it should show:

- The user
- The solution
- How the solution solves the problem and meets the need of the user.
- The emotions of the user. This might include how the user feels when they use the solution. Or it could show a before and after, in which the user's emotions before and after the solution are shown.

Display these criteria for students to refer to as they create their visual representations. Teacher may also choose to share the *Reflecting on the Process Rubric* with students so they are aware of the expectations.

Students could:

- Create a poster depicting a drawing of the user with the solution.
- Create a collage of photos that represent the problem and solution, and the emotions of the user.
- Create a PowerPoint or Prezi presentation with photos and videos.
- Draw or describe improvements they could make to their drawing in the future, to meet the needs of their user even better.
- Add words and sentences to their visual representation that explains how the solution works or meets the need of the user.

Give students two or three periods to finish their visual representations.

## Accommodations

- Students could prepare a role-playing activity in which they take on the role of the user and show how the user uses the solution to solve the problem. They prepare a short presentation that shows the solution “in action” and present it to the class.
- Students could interview each other about their experience with the process, asking them to explain their solution and how well it fit the user's needs.
- Ask students to write a detailed paragraph explaining how their solution met the user's needs, and whether they would change it to better meet the needs.

## Wrap-Up

Invite students to present their visual representations.

- Teacher could have each student individually present their representation, explaining how it represents their reflection on the process.
- Teacher could also have students display their representations around the room. Class could engage in a gallery walk and view each others' work. Teacher could hold individual conferences with students, asking them to explain how their representation displays their reflection.

## Assessment

Use *Reflecting on the Process Rubric* to assess students' visual representations. Can also collect *Reflecting on the Process Worksheet* to assess students' understanding of the concepts.



Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Reflecting on the Process Worksheet

Who was your user, and what problem did they face? Restate your “define” stage in new words.

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What was your solution and how did it meet the needs of your user?

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How did the solution make your user feel?

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How might you improve your solution to better meet the needs of your user in the future?

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Student name: \_\_\_\_\_

Date: \_\_\_\_\_

### Reflecting on the Process Rubric

	Level 1	Level 2	Level 3	Level 4
<b>Knowledge and Understanding</b>	Student's visual representation does not clearly show their user and solution.	Student's visual representation shows their user and solution, but with some clarity issues.	Student's visual representation clearly shows their user and solution.	Student's visual representation shows their user and solution, with clarity and creativity.
<b>Thinking</b>	Student's visual representation somewhat explores how the solution works and connection to the emotions of the user is unclear.	Student's visual representation explores how the solution works with some clarity issues, and somewhat connects to the emotions of the user.	Student's visual representation explores how the solution works and connects to the emotions of the user.	With exceptional creativity and insight, student's visual representation explores how the solution works and connects to the emotions of the user.
<b>Application</b>	Student's visual representation does not demonstrate how the solution meets the need of the user.	Student's visual representation somewhat demonstrates how the solution meets the need of the user.	Student's visual representation demonstrates how the solution meets the need of the user.	Student's visual representation clearly and creatively demonstrates how the solution meets the need of the user.
<b>Communication</b>	Student's visual representation presents the solution with some clarity issues, and does not clearly express the reflection done by the student.	Student's visual representation presents the solution and somewhat expresses the reflection done by the student.	Student's visual representation clearly presents the solution and expresses the reflection done by the student.	Student's visual representation clearly and creatively presents the solution and expresses, showing exceptional insight, the reflection done by the student.

Notes: \_\_\_\_\_

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