



**Final Curricular Project: Creation of a Font**



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## Final Curricular Project: Creation of a Font

### Introduction:

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This project is going to be used to create something that can be used to get to know their peers. It can be developed into different learning objectives in Workplace 10 and 20 (WA 10/20). In WA10, they learn about different topics like income, perimeter, area, volume, mass, and unit conversions. Then, in WA20 the students are introduced to surface area, volume, graphs, and scale. So, this project should reflect these concepts they learn about, and relate this to being in real-life problems.

### The Making Process:

When I started with this project, I started to think about maybe I can have students create an adaptation for EFAP rooms as part of the Volunteer work as part of Catholic Studies (9/10/20/30). But I realize that there is so much research I would need to do. So, I went a very simple project that I could do with students with disabilities. I went along with the “creation of a font” idea, because it is a good way to learn about the student and see who they are and allow students to learn something new about their classmates. To see what their interest are as well, because of the freedom to choose their medium to use something they are familiar with and which are masters at using.

### Discovery:

I started by researching what type of learning is with crocheting. Then, I asked my mom, “What do you think about just using crocheting as my medium to create a word?”. She responded, “Will that take lots of time to teach students how to crochet.” That is why I decided to have an open-ended medium that students can choose.

Then I only wanted to create a name (or nickname) because in one of my university classes, a professor made nametags and that was how she took attendance for who was present. Then, my mom asked, “What if the student’s name is just two letters?” I did not know how to respond to that, then I decided to do a word that have a significant meaning to the student.

### Interpretation:

I wanted to do a project that crocheting is one of my mediums. However, I realized that some students do not know how to crochet and/or do not like to crochet. That is why I chose an open-ended medium.

### Ideation:

I started with the word-creation idea then I developed it into the creation of a font because that is what it is. This project is about creating a word in your style and it is easier to relate to math concepts.

### Experimentation:

I started this project, my crocheting and this project was just going to be crocheting and I started to create patterns. Then I got some feedback from my mom and started to explore other mediums that I could do, and I came up with the freedom to

choose the medium I chose (Tinker CAD, Minecraft, Lego, and Crocheting as mediums).

I also got feedback from my peers on how I can relate this project back to Math. I came up with two subject areas Workplace and Apprenticeship Math 10 and 20 (WA10 and WA20). In WA10, I figured out that they can do Units 2, 3, and 4, which are about spatial measurements (perimeter, area, volume, and mass), and income. Then in WA20, they will do Units 2, 3, and 5, which are about graphical representations, area and volume, and Scale representations. So, I related both mathematic subjects to the creation of words.

#### Evolution:

I expanded this project a lot throughout the Making process. I started with a simple idea and then developed the idea into a more complex project. I expanded the project to include people who need adaptations who do not usually understand the mathematic concepts, but still have fun creating the project.

#### Grade Level or Context:

##### Grade Level:

High School math (WA 10/20)

##### Context:

##### 10 lv:

Students will choose one (school-appropriate) word and one medium to create with that medium. If they do not choose a word that is not school-appropriate they need to choose another word and get -2.5 points to their final mark for this project. Students will log all their hours, find the following: perimeter, area, volume, and mass; they will convert the unit measurements; and they will also figure out how much they will get paid.

##### 20 lv:

Students will choose one (school-appropriate) word and two mediums to create with that medium. If they do not choose a word that is not school-appropriate they need to choose another word and get -2.5 points to their final mark for this project. Students will collect data, find the following: area and volume, and they will find the scale between the two mediums.

#### Learning Objectives:

##### 10 lv:

##### **WA10.1**

Demonstrate understanding of the preservation of equality including solving problems that involve the manipulation and application of formulas related to:

- perimeter
- area
- the Pythagorean Theorem

- primary trigonometric ratios
- income.

**WA10.3**

Demonstrate using concrete, and pictorial models, and symbolic representations, understanding of measurement systems including:

- The Système International (SI)
- The British Imperial system
- The US customary system.

**WA10.5**

Demonstrate using concrete and pictorial models, and symbolic representations, understanding of area of 2-D shapes and surface area of 3-D objects including units in SI and Imperial systems of measurement. ([CN, ME, PS, R, T, V])

**WA10.11**

Demonstrate understanding of income including:

- wages
- salary
- contracts
- commissions
- piecework
- self-employment
- gross pay
- net pay.

20 lv:

**WA20.3**

Extend and apply understanding of surface area, volume, and capacity using concrete and pictorial models and symbolic representations (SI or imperial units of measurement).

**WA20.5**

Extend and apply understanding of 3-D objects including:

- top, bottom, and side views
- exploded views

- component parts
- scale diagrams.

### **WA20.11**

Extend and apply understanding of representing data using graphs including:

- bar graphs
- histograms
- line graphs
- circle graphs.

#### Rationale:

When developing this project, I came up with something called a “Math Craft”. This term allows students to reflect on real-life learning in math, crafts, and sciences (Kokko et al., 2015). I talk from experience because I learnt math from crocheting, and that is something I want to share with others so that they can do something they love to do and create something that they have experience creating. I wanted to also to show them that anything can be related to mathematics so that they can understand that in any medium, there is math behind that medium they chose. I focused more on how to make this project “ability-friendly” project. This is for people who require an adaptation to create something they can create.

#### Media Description & Rationale:

I chose this Math craft because it helps people with disabilities, I can relate to developing math skills relating to crafts. In an article, “83 Writing and Number Skill Development of Children with intellectual disability through Craft and Games” by Maheswari, M; and Chinnasamy, R., talk about how learning through crafts and games helps kids with intellectual disabilities (ID) can help them with writing, numbers, and reading skills (2022, p. 184). In the number skill section, the authors state that “Basic number concepts set the foundation for learning more advanced math concepts.” (Maheswari & Chinnasamy, 2022, p. 184). In the article it describes crafts as “making and doing” (2022, p. 184). Doing crafts and games in the classroom helps students with disabilities with fine motor skills, hand-eye coordination, communication, and social skills through systematic and intensive training (2022, p. 190). According to the article, the implementation of crafts in the classroom has a positive improvement for kids with ID (2022, p. 190-191). I can agree with these results because I can understand math concepts like multiplication after I saw patterns in crocheting.

In another article, it describes how arts and crafts can help students gain interest in Science, Technology, Engineering, and Mathematics (STEM). The article discusses how engineers understand the importance of arts and crafts in the STEM field (Root-Bernstein, 2015, p. 204). So, in saying the importance of with crafts is important to the interest of the STEM field. I decided to make this project open-ended so students can

have the freedom to develop their understanding of concepts about mathematics and enjoy doing this project. This project is also very simple to do in the classroom, and it focuses on the student's creativity in developing their project.

### Reflection on Making:

#### *WA 10:*

I started this project with my crocheting medium, so I was taking time with this part of my project. Then I related it to the content I learned about in Workplace 10. I related the project to three units found in the textbook: Unit 2: Earning an Income, Unit 3: Length, Area, & Volume, and Unit 4: Mass, Temperature & Volume. In Unit 2, I decided to make it so that they have an imaginary job where they create something and they could have an income. Then in Units 3 and 4, I related it to math concepts that they learn about, they learn about perimeters, area, and volume of objects, as well as the mass of different objects as well. So, this was my first example of the Creation of a Font, I found it a bit difficult to make letters in a flat medium, but I found it to be fun to relate it to mathematics.

#### *WA 20:*

I started this project I wanted to be doing one word and two mediums, so I chose my childhood nickname "Nico" and I started with TinkerCAD, then I made the other name out of Lego. So in WA 20 they learn about: Unit 2: Graphical Representations, Unit 3: Surface Area, Volume & Capacity, and Unit 5: Scale Representation. So I started with Unit 5, where they need to create a Scale factor (SF) between two mediums. Then in Unit 2, they need to collect data from their peers first hand. Then in Unit 3, they will calculate the Surface Area, and Volume of their project. This project was a bit difficult to create the graph part of the project because it required me to collect data from 10 or more people to create the graphs. Also, when I was done creating the word in the first medium I found out it printed the C and the O as Uppercase letters when the Regina Public Library printed my project. That is what I created for my project in WA20.

### *Overall Reflection:*

When I was using different mediums some projects took me a long time to create like "Ciarciaglini" in crocheting. Also, "Schizencephaly" took me longer to create because the words were longer and because the mediums needed solid making to figure out the Area, Volume and Mass. Then doing a four-character word was quick and easy to do, so students can do this project quickly and easily. It is a pretty easy project to create and I had fun creating these words in the medium I chose. I decided not to do the math behind "Schizencephaly" but that is the only one that I did not do in it.

### Assessment:

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Each lesson plan has a formative and summative assessment. The "formative assessment" assesses a student's participation. The "summative assessment" assesses the student's understanding of math concepts.

Individual Lessons:

Lesson 1:

See Lesson 1: Introduction

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 2:

*WA10:*

See Lesson 2: Creation

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

*WA20:*

See Lesson 2: Creation

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 3:

*WA10:*

See Lesson 3: Perimeter, Area, Volume, & Mass

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

*WA20:*

See Lesson 3:

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.



II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 4:

*WA10:*

See Lesson 4: Converting

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

*WA20:*

See Lesson 4:

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 5:

*WA10:*

See Lesson 5: Pay

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 6 (5):

*WA10:*

See Lesson 6: Presentation

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

WA20:

See Lesson 5: Presentation

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

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