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**Lesson Plan**

Spreadsheet Applications

MODULE 6

This **lesson plan** was written for the Florida Public School System DIGITAL INFORMATION TECHNOLOGY (8207310) course. Funded by the Cyber/IT Pathways Program, Cyber Florida, and the Florida Department of Education.

**Digital Information Technology (8207310)**

This Lesson Plan is designed to aid high-quality instruction through the identification of components that support learning and teaching. Each section of this Lesson Plan is modeled after 2022-2023 CTE Standards and Benchmarks for Digital Information Technology (8207310) as published by the Florida Department of Education Student Performance Standards.

Spreadsheet Applications

# Module Overview

This module will teach students how to create and edit a spreadsheet using spreadsheet software. Upon completion of this module, students will be able to use basic spreadsheet tools and formulas to manipulate data. Students will also be able to explain and demonstrate how to format rows and columns, create and edit formulas, create and edit charts, and other features of spreadsheet software.

## DIT Textbook Chapter Overview

The *Productivity Applications* and *Introduction to* *Spreadsheets* chapters in the accompanying DIT textbook support the conceptual understanding of the content covered in this module*.*

## CTE Standard and Benchmark

**Standard 06.0:** Use presentation applications to enhance communication skills. The student will be able to:

* **06.01** Manipulate the worksheet by using the ribbon tabs, group settings, importing data/database, manipulating properties, files, and folders.
* **06.02** Create cell data and apply auto fill.
* **06.03** Format cells and worksheets (e.g., by applying and manipulating cell formats, styles, merging and splitting cells, create row and column titles, hide and unhide column titles, rows and columns, page setup options, and manipulating views/themes).
* **06.04** Create and analyze formulas and functions (e.g., apply conditional formula logic, name, and cell ranges).
* **06.05** Create and modify charts and images. (e.g., pivot tables)
* **06.06** Share worksheet data through various system (e.g., email, external media, cloud storage, mail merge).
* **06.07** Analyze and organize data through filters, sorting and applying conditional formatting. (e.g., macros)
* **06.08** Interpret data online graphs, pie charts, diagrams, and tables.

# Continuity

Students will have read all content in the textbook chapters *Productivity Applications* and *Introduction to* *Spreadsheets* to prepare for all lessons in this module.

Table 1 Continuity

| **Standard** | **Recommended Previous Lesson/Knowledge** | **This Lesson** | **Recommended Upcoming Lessons** |
| --- | --- | --- | --- |
| 06.01 | Students should read the *Spreadsheets* sectionof the *Productivity Applications* chapter.  Students know how to locate and open spreadsheet software. | Students will use spreadsheet software to learn the purpose of various command buttons located on the ribbon tabs, command buttons, or other menu options depending on the software product.  This includes learning how to input and format data, save a worksheet file, and create folders. | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.02 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with how to navigate a spreadsheet workbook and its sheets. Additionally, students should be familiar with the concept of a spreadsheet cell. | Students will use spreadsheet software to format cell data by using the auto fill options. | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.03 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with a spreadsheet cell and how to manipulate its formatting. | Students will use spreadsheet software to format cells and worksheets (e.g., by applying and manipulating cell formats, styles, merging and splitting cells, create row and column titles, hide and unhide column titles, rows and columns, page setup options, and manipulating views/themes). | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.04 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with the formula bar and the various formula syntax options for a spreadsheet cell and formulas such as SUM, AVERAGE, COUNT, MIN, MEDIAN, and MAX. Mathematical operations should be studied and considered in formulas. | Students will use spreadsheet software to create and analyze formulas and functions (e.g., apply conditional formula logic, name, and edit cell ranges). | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.05 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with all chart capabilities of the spreadsheet software to include what kind of data is applicable for use. Students should understand the concept of a pivot table. Experience manipulating images in other productivity software such as word processors or presentation software may be helpful for students to understand how images can be manipulated in spreadsheets. | Students will use spreadsheet software to create and modify charts and images (e.g., pivot tables). | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.06 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with the basic functionalities of sharing technologies such as email and cloud storage. | Students will use spreadsheet software to share worksheet data through various systems (e.g., email, external media, cloud storage, mail merge). | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.07 | Students should read the *Introduction to* *Spreadsheets* chapter.  Students should be familiar with the concept of sorting and filtering data. Students should have been exposed to what it looks like and how data can be conditionally formatted. | Students will use spreadsheet software to analyze and organize data through filters, sorting and applying conditional formatting. (e.g., macros) | Students will use the knowledge from this lesson to learn future DIT modules. |
| 06.08 | Students should read the *Spreadsheets* chapter.  Students should be familiar with the data visualization concepts. For instance, how do you interpret one visualization versus another. | Students will use spreadsheet software to interpret data on various types of graphs/charts, diagrams, and tables. | Students will use the knowledge from this lesson to learn future DIT modules. |

# Student Learning Outcomes

**Standard 06.01**

Students will be able to identify parts of the spreadsheet window (ribbon, tabs, groups, and command buttons). Students will be able to navigate a worksheet to input and transform data.

**Standard** **06**.**02**

Students will be able to input and format cell data. Students will be able to format dates using the various Auto Fill options.

**Standard 06.03**

Students will be able to explain and demonstrate how to format the appearance of cell data by applying and manipulating cell formats, styles, merging and splitting cells, create row and column titles, hide and unhide column titles, rows and columns, page setup options, and manipulating views/themes.

**Standard 06.04**

Students will be able to create and analyze formulas and functions. Students will be able to use the various Data Tools to input and transform data.

**Standard 06.05**

Students will be able to identify the different chart types and which type of chart should be used to represent various data. Students will be able to create and modify charts and images.

**Standard 06.06**

Students will be able to save and share worksheet data through various systems.

**Standard 06.07**

Students will be able to analyze and organize data through filters, sorting, and applying conditional formatting.

**Standard 06.08**

Students will be able to create and interpret data of graphs/charts, diagrams, and tables.

# Materials Needed

**Standard 06.01, 06.02, 06.03, 06.04, 06.05, 06.06, 06.07, 06.08**

All standards are best met with each student having access to a computing device (personal computer, laptop, smart phone, or tablet) with spreadsheet software.

# Use of Space

Activities associated with all standards will require a classroom space that includes computing devices. If the space does not have computing devices, the teacher can consider the use of student personal devices (ex. smart phones, tablets, laptops). If the student does not have a computing device, the teacher can consider using a device for class demonstration purposes. For instance, the teacher could use their own school-supplied or personal computing device to demonstrate to all students. Consideration should also be given to where furniture and students are placed within the classroom to accommodate diverse needs.

# Prepare for the Lesson

Table 2 shows how the teacher and students should prepare for this lesson.

Table 2 Preparations

| **Teacher** | **Student** | **Assessment/Assignment** |
| --- | --- | --- |
| The teacher should read the *Introduction to* *Spreadsheets* chapter and the *Spreadsheets* sectionof the *Productivity Applications* chapter.  The teacher should be proficient in using and explaining the features of spreadsheet software.  The teacher should consider if a computing device should be used for instruction if computer devices are not available for all students.  The teacher should read the chapter cases and consider how to receive feedback from the students.  It is recommended that teachers are familiar with how to choose an effective visualization when using the spreadsheet chart tools and data. Consider using the following resource to prepare for this module: Choosing an Effective Visual with the SWD Chart Guide (<https://www.storytellingwithdata.com/chart-guide>). | The student should read the *Introduction to* *Spreadsheets* chapter and study all terms.  The student should read the *Spreadsheets* section of the *Productivity Applications* chapter.  Additionally, the student should read the case at the end of the chapter. | Standard 06.01, 06.02, 06.03, 06.04, 06.05, 06.06, 06.07, 06.08: In-class activities are designed to familiarize students with spreadsheets software.  Worksheets will assess the student’s ability to perform the activities in class.  The teacher will review both chapter cases in class. The teacher will conduct a verbal discussion to solicit student responses and participation. Students will be assessed on the chapter case based on their written responses to the chapter case questions and in-class discussion.  An answer key and/or rubric is provided for all student activities. |

# Activities

Table 3 shows the student workload effort for each activity in this module.

Table 3 Student Activities and Workload

| **Activity** | **Description** | **Estimated Student Completion Time** | **DIT Standard Alignment** |
| --- | --- | --- | --- |
| It’s My Party | Student uses the Internet to find the cost of items needed for the party at online stores, then edits the data in the pre-made It’s My Party spreadsheet by entering new data, formatting cells, creating a chart, and using formulas. | 45 minutes in-class x 3-4 classes | 06.01, 06.02, 06.03, 06.04, 06.05, 06.08 |
| My Shopping List | Student performs calculations in the pre-made My Shopping List spreadsheet. | 45 minutes in-class x 1-2 classes | 06.01, 06.02, 06.03, 06.05 |
| What’s in Your Bag? | Student creates a new spreadsheet showing the distribution of colors in a bag of candy with a pie chart. | 45 minutes in-class x 1-2 classes | 06.01, 06.02, 06.03, 06.04, 06.05, 06.08 |
| Famous Amusement Parks | Student edits data in the pre-made Famous Amusement Parks spreadsheet by entering new data, formatting cells, creating a chart, and using formulas. | 45 minutes in-class x 1-2 classes | 06.01, 06.02, 06.03, 06.04, 06.05, 06.08 |
| Chapter Case: Sports Tracking Spreadsheet | Student reviews the case from the *Introduction to* *Spreadsheets* chapter and answers critical thinking questions. | 45 minutes in-class | 06.01 |
| Chapter Case: A Teacher's Work is Never Done | Student reviews the case from the *Productivity Applications* chapter and answers critical thinking questions. | 45 minutes in-class | 06.01 |

# Assessments

The teacher will evaluate a student’s performance using the various features of a spreadsheet by measuring the accuracy of the student’s documentation.

Additionally, the teacher will evaluate the student’s critical thinking ability as they work in the chapter case. The teacher will use the assessment for formative purposes and will provide feedback on the accuracy of the student’s response and on means to promote student success.

The teacher will score assignments on a scale of 1-4 measuring the level of understanding the student is able to communicate about the subject.

# Accommodations

Please adhere to the [Florida Department of Education (2018) Accommodations Assisting Students with Disability Guidelines](https://www.fldoe.org/core/fileparse.php/7690/urlt/0070069-accomm-educator.pdf).

To reduce anxiety while completing activities, provide students with support while completing their assignments and sufficient time to complete their assignments in class.

Students can be encouraged to work with a peer to identify appropriate responses for the case scenario.