AP CSA Slides and Worksheet Automation

With GPT3 and Google Apps Script (GAPS)

Github Project Link:
https://github.com/timsampson/lesson_plan_Appsscript_gpt3/

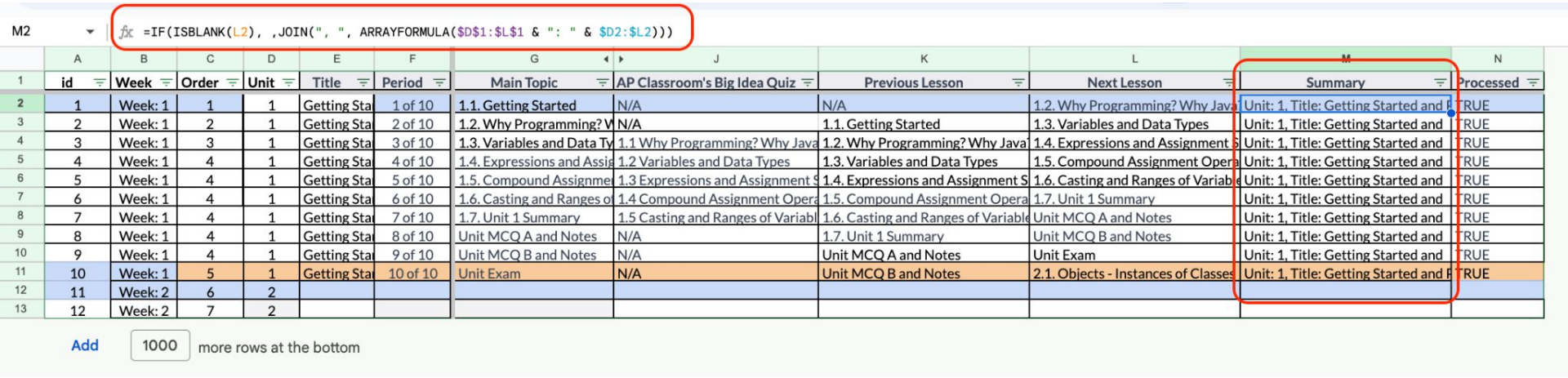
About

As a summer project I wanted to get some experience with LLMs and see how they might help provide some content for lesson activities for CS subjects to support automating Worksheet and slides for each lesson.

After many iterations and starting with simple prompts and lots of copy and pasting, I have a workflow that works consistently with a minimum amount of input while providing activity documents and lesson step slides will help add value to lesson delivery in class.

1. Add some basic lesson details to the lesson_details tab: Unit, Title, Period, Main Topic, AP Classroom's Big Idea Quiz, Previous Lesson, and Next Lesson
2. Select the Menu option -> Create Resources -> Create LP Details
3. From the ‘scripting_docs’ tab add the optional Youtube titles and URLs.
4. Select the Menu options -> ‘Create Docs and Slides’.

Note: There are some additional columns that will hold some placeholder text for the prompt, or that will be used for some script functions, but the lesson_detail categories above are used in the prompt.



	A	B	C	D	E	F	G	J	K	L	M	N
1	id	Week	Order	Unit	Title	Period	Main Topic	AP Classroom's Big Idea Quiz	Previous Lesson	Next Lesson	Summary	Processed
2	1	Week: 1	1	1	Getting Sta	1 of 10	1.1. Getting Started	N/A	N/A	1.2. Why Programming? Why Java	Unit: 1, Title: Getting Started and	TRUE
3	2	Week: 1	2	1	Getting Sta	2 of 10	1.2. Why Programming? W	N/A	1.1. Getting Started	1.3. Variables and Data Types	Unit: 1, Title: Getting Started and	TRUE
4	3	Week: 1	3	1	Getting Sta	3 of 10	1.3. Variables and Data Ty	1.1 Why Programming? Why Java	1.2. Why Programming? Why Java	1.4. Expressions and Assignment S	Unit: 1, Title: Getting Started and	TRUE
5	4	Week: 1	4	1	Getting Sta	4 of 10	1.4. Expressions and Assig	1.2 Variables and Data Types	1.3. Variables and Data Types	1.5. Compound Assignment Opera	Unit: 1, Title: Getting Started and	TRUE
6	5	Week: 1	4	1	Getting Sta	5 of 10	1.5. Compound Assignme	1.3 Expressions and Assignment S	1.4. Expressions and Assignment S	1.6. Casting and Ranges of Variab	Unit: 1, Title: Getting Started and	TRUE
7	6	Week: 1	4	1	Getting Sta	6 of 10	1.6. Casting and Ranges of	1.4 Compound Assignment Opera	1.5. Compound Assignment Opera	1.7. Unit 1 Summary	Unit: 1, Title: Getting Started and	TRUE
8	7	Week: 1	4	1	Getting Sta	7 of 10	1.7. Unit 1 Summary	1.5 Casting and Ranges of Variabl	1.6. Casting and Ranges of Variable	Unit MCQ A and Notes	Unit: 1, Title: Getting Started and	TRUE
9	8	Week: 1	4	1	Getting Sta	8 of 10	Unit MCQ A and Notes	N/A	1.7. Unit 1 Summary	Unit MCQ B and Notes	Unit: 1, Title: Getting Started and	TRUE
10	9	Week: 1	4	1	Getting Sta	9 of 10	Unit MCQ B and Notes	N/A	Unit MCQ A and Notes	Unit Exam	Unit: 1, Title: Getting Started and	TRUE
11	10	Week: 1	5	1	Getting Sta	10 of 10	Unit Exam	N/A	Unit MCQ B and Notes	2.1. Objects - Instances of Classes	Unit: 1, Title: Getting Started and	TRUE
12	11	Week: 2	6	2								
13	12	Week: 2	7	2								

- The lesson plan details are added to each row in this tab.
- When the row content is added, the summary tab will automatically populate with the correct formatting to be read and passed to GPT3.

lesson_details Slide

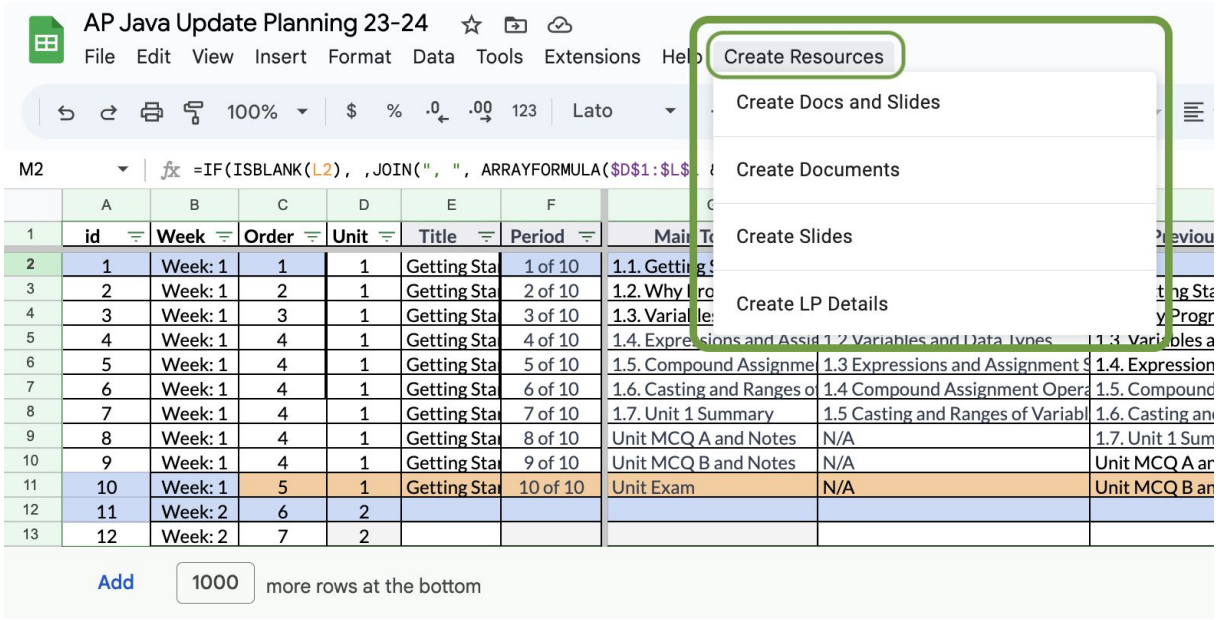
W11 | fx TRUE

	A	B	C	D	E	F	N	O	P	Q	R	S	T	U	V	W
1	id	unit	title	period	main_topic	introduction	next_lesson_pre	ak_for_essential	ak_true_false	completion_checklist	lecture_video_tit	video_lecture	shorts_video_titl	video_topic	doc_created	slide_created
2	1	1	Getting Started and Primitive Types	1 of 10	1.1. Getting Started	Welcome to AP C	Next, we'll dive i	Topic Sentence:	Topic Sentence:	Read CSAwesome 1.1. Getting Started | Unders	Unit 1: AP Comp	https://youtu.be/	How Computers	https://youtu.be/	TRUE	TRUE
3	2	1	Getting Started and Primitive Types	2 of 10	1.2. Why Programming? Why Java?	In today's lesson,	In our next lesso	Topic Sentence:	Topic Sentence:	Read CSAwesome 1.2. Why Programming? Wh	Unit 1: AP Comp	https://youtu.be/	CodeHS AP CS	https://youtu.be/	TRUE	TRUE
4	3	1	Getting Started and Primitive Types	3 of 10	1.3. Variables and Data Types	In this lesson, we'	In the next lesso	Topic Sentence:	Topic Sentence:	Read CSAwesome 1.3. Variables and Data Type	CodeHS AP CS	https://youtu.be/	AP CS A - 1.2b \	https://youtu.be/	TRUE	TRUE
5	4	1	Getting Started and Primitive Types	4 of 10	1.4. Expressions and Assignment Statements	Today we will be c	In our next lesso	We can use expr	True: Expressior	1. Review the concepts of variables and data ty	Unit 1: AP Comp	https://youtu.be/	AP CS A - 1.3 E	https://youtu.be/	TRUE	TRUE
6	5	1	Getting Started and Primitive Types	5 of 10	1.5. Compound Assignment Operators	In today's lesson,	In our next lesso	Compound assignment operators		1. Participate in the warm-up discussion. | 2. Tal	Unit 1: AP Comp	https://youtu.be/	AP CS A - 1.4 C	https://youtu.be/	TRUE	TRUE
7	6	1	Getting Started and Primitive Types	6 of 10	1.6. Casting and Ranges of Variables	In today's lesson,	In our next lesso	It is important to	False. Casting al	Read CSAwesome Lesson 1.6. | Complete CSA	AP CS A - 1.4b	https://youtu.be/	AP CS A - 1.5 C	https://youtu.be/	TRUE	TRUE
8	11	1	Getting Started and Primitive Types	7 of 10	1.7. Unit 1 Summary	In today's lesson,	In the next lesso	The main topics covered in Unit 1		1. Review the main topics covered in Unit 1. | 2.	Could nuclear fu	https://youtu.be/	PurdueX CS180	https://youtu.be/	TRUE	TRUE
9	12	1	Getting Started and Primitive Types	8 of 10	Unit MCQ A and Notes	Today we will be f	In our next lesso	Variables and data types play a cr		1. Participate in the warm-up discussion. | 2. Co	How does mater	https://youtu.be/	PurdueX CS180	https://youtu.be/	TRUE	TRUE
10	13	1	Getting Started and Primitive Types	9 of 10	Unit MCQ B and Notes	In today's lesson,	In the next lesso	Taking comprehensive notes can		1. Participate in the warm-up discussion on effe	How code has ch	https://youtu.be/	PurdueX CS180	https://youtu.be/	TRUE	TRUE
11	14	1	Getting Started and Primitive Types	10 of 10	Unit 1 Exam	Today we will be r	In the next lesso	Students should discuss how they		Review enduring understandings and suggested	Programming La	https://youtu.be/	PurdueX CS180	https://youtu.be/	TRUE	TRUE

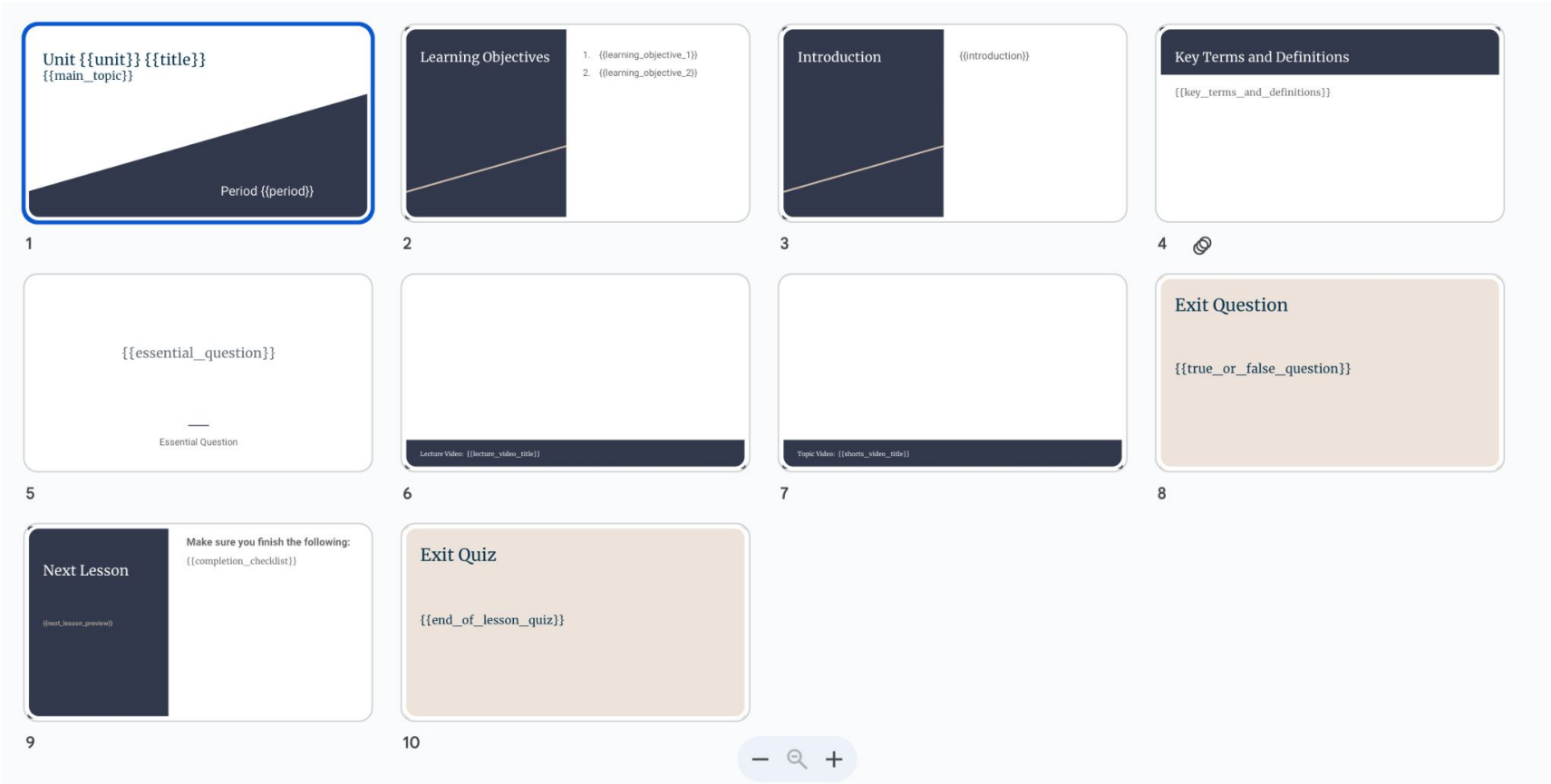
Add 1000 more rows at the bottom

- This slide is populated by GTP3, except for the Youtube info.
- Once filled in, it can be used for Apps Script to create docs and Slides. The Youtube is optional, but handy to add at this point.

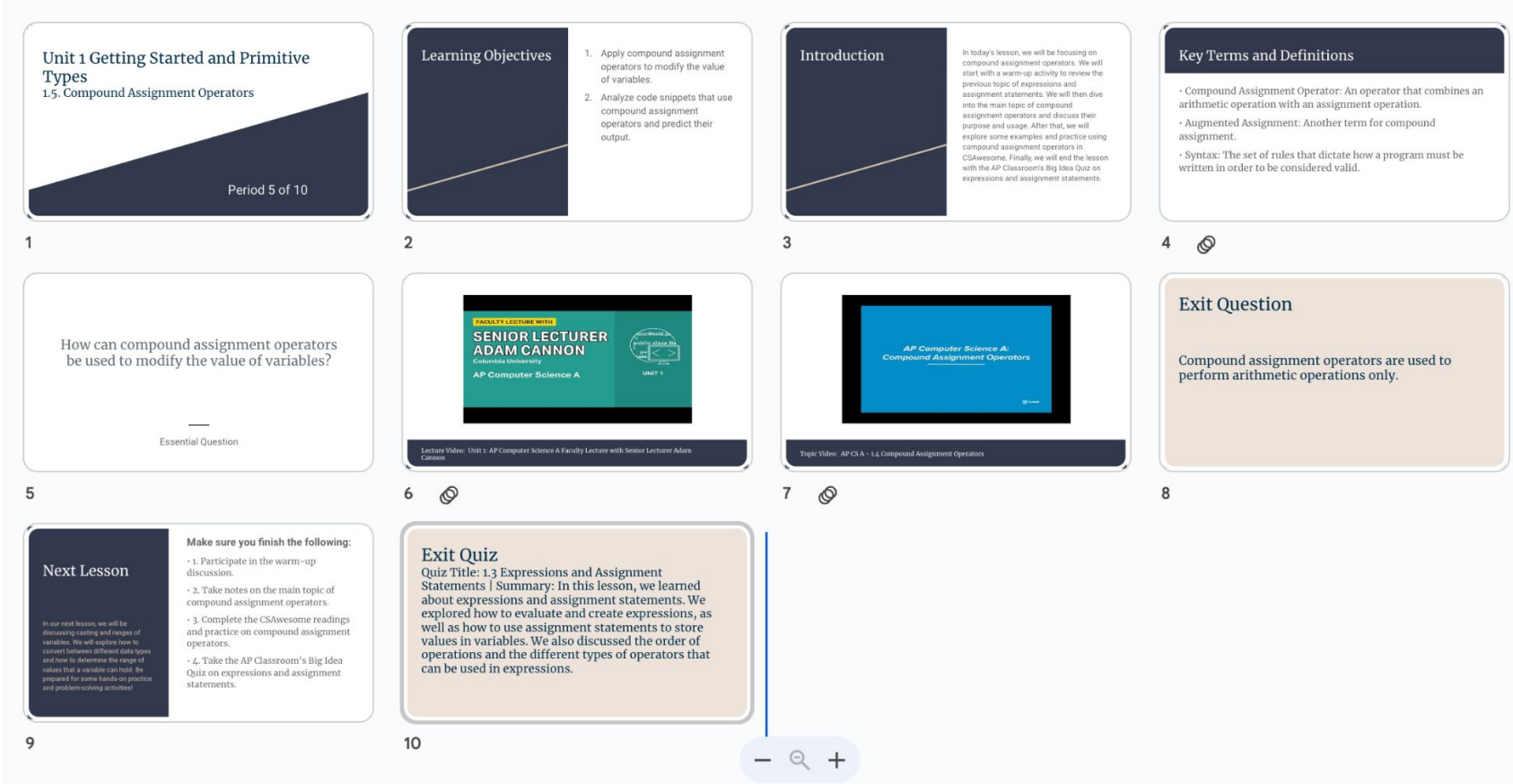
scripting_docs Slide



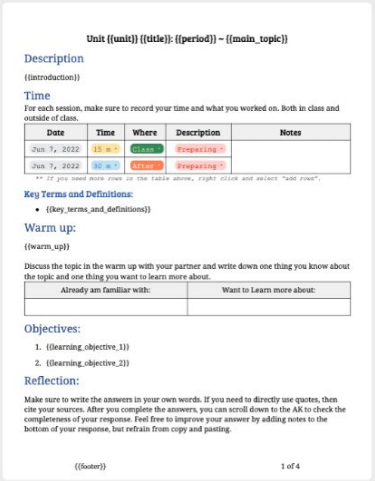
- Menu options
  - Create LP uses lesson_details tab with GPT to update script_docs tab.
  - Then choose the Create Documents or Create Slides.



Template slide used when running the ‘Create Slides’ command.



Example Lesson Slide after running the ‘Create Slides’ menu command.



Unit {{unit}} {{title}}: {{period}} ~ {{main_topic}}

Description

{{introduction}}

Time

For each session, make sure to record your time and what you worked on. Both in class and outside of class.

Date	Time	Where	Description	Notes
Jun 7, 2022	15 m	Class	Preparing	
Jun 7, 2022	30 m	After	Preparing	

** If you need more rows in the table above, right click and select "add rows".

Key Terms and Definitions:

- {{key_terms_and_definitions}}

Warm up:

{{warm_up}}

Discuss the topic in the warm up with your partner and write down one thing you know about the topic and one thing you want to learn more about.

Already am familiar with:	Want to Learn more about:

Objectives:

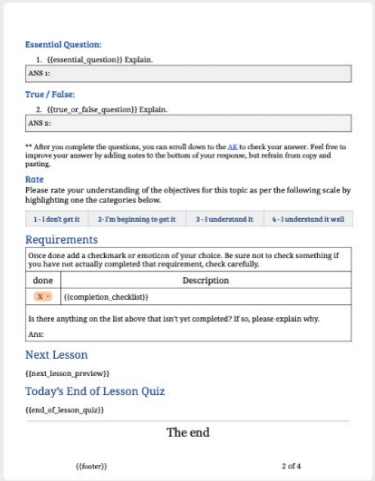
1. {{learning_objective_1}}
2. {{learning_objective_2}}

Reflection:

Make sure to write the answers in your own words. If you need to directly use quotes, then cite your sources. After you complete the answers, you can scroll down to the AK to check the completeness of your response. Feel free to improve your answer by adding notes to the bottom of your response, but refrain from copy and pasting.

{{footer}} 1 of 4

1



Essential Question:

1. {{essential_question}} Explain.

ANS 1:

True / False:

2. {{true_or_false_question}} Explain.

ANS 2:

** After you complete the questions, you can scroll down to the AK to check your answer. Feel free to improve your answer by adding notes to the bottom of your response, but refrain from copy and pasting.

Rate

Please rate your understanding of the objectives for this topic as per the following scale by highlighting one the categories below.

1 - I don't get it	2 - I'm beginning to get it	3 - I understand it	4 - I understand it well

Requirements

Once done add a checkmark or emoticon of your choice. Be sure not to check something if you have not actually completed that requirement, check carefully.

done	Description
X	{{completion_checklist}}

Is there anything on the list above that isn't yet completed? If so, please explain why.

Ans:

Next Lesson

{{next_lesson_preview}}

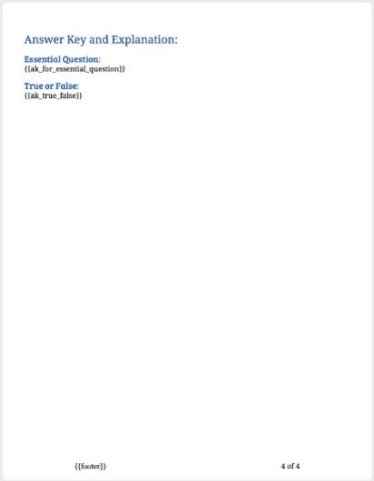
Today's End of Lesson Quiz

{{end_of_lesson_quiz}}

The end

{{footer}} 2 of 4

2



Answer Key and Explanation:

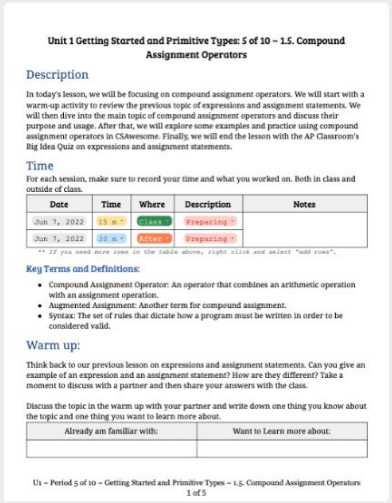
Essential Question:
{{ak_for_essential_question}}

True or False:
{{ak_true_false}}

{{footer}} 4 of 4

3

Template document used when running the ‘Create Documents’ command.



Unit 1 Getting Started and Primitive Types: 5 of 10 – 1.5. Compound Assignment Operators

Description

In today's lesson, we will be focusing on compound assignment operators. We will start with a warm-up activity to review the previous topic of expressions and assignment statements. We will then dive into the main topic of compound assignment operators and discuss their purpose and usage. After that, we will explore some examples and practice using compound assignment operators in CSAwesome. Finally, we will end the lesson with the AP Classroom's Big Idea Quiz on expressions and assignment statements.

Time

For each session, make sure to record your time and what you worked on. Both in class and outside of class.

Date	Time	Where	Description	Notes
Jun 7, 2022	15 m	Class	Preparing	
Jun 7, 2022	30 m	After c	Preparing	

** If you need more rows in the table above, right click and select "add rows".

Key Terms and Definitions:

- Compound Assignment Operator: An operator that combines an arithmetic operation with an assignment operation.
- Augmented Assignment: Another term for compound assignment.
- Syntax: The set of rules that dictate how a program must be written in order to be considered valid.

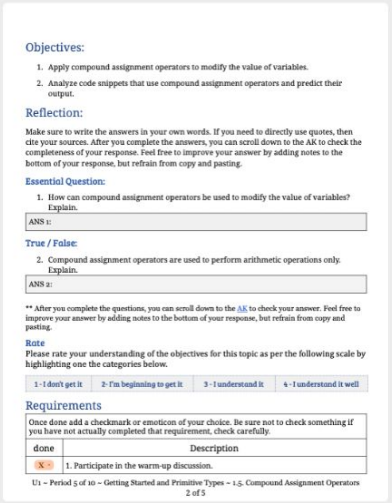
Warm up:

Think back to our previous lesson on expressions and assignment statements. Can you give an example of an expression and an assignment statement? How are they different? Take a moment to discuss with a partner and then share your answers with the class.

Discuss the topic in the warm up with your partner and write down one thing you know about the topic and one thing you want to learn more about.

Already am familiar with:	Want to Learn more about:

1



Objectives:

1. Apply compound assignment operators to modify the value of variables.
2. Analyze code snippets that use compound assignment operators and predict their output.

Reflection:

Make sure to write the answers in your own words. If you need to directly use quotes, then cite your sources. After you complete the answers, you can scroll down to the AK to check the completeness of your response. Feel free to improve your answer by adding notes to the bottom of your response, but refrain from copy and pasting.

Essential Question:

1. How can compound assignment operators be used to modify the value of variables? Explain.

ANS 1:

True / False:

2. Compound assignment operators are used to perform arithmetic operations only. Explain.

ANS 2:

** After you complete the questions, you can scroll down to the AK to check your answer. Feel free to improve your answer by adding notes to the bottom of your response, but refrain from copy and pasting.

Rate

Please rate your understanding of the objectives for this topic as per the following scale by highlighting one the categories below.

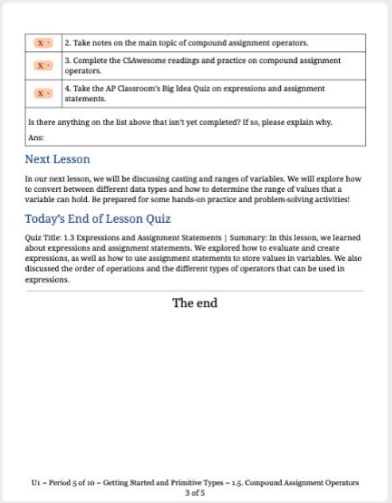
1 - I don't get it	2- I'm beginning to get it	3 - I understand it	4 - I understand it well

Requirements

Once done add a checkmark or emoticon of your choice. Be sure not to check something if you have not actually completed that requirement, check carefully.

done	Description
X	1. Participate in the warm-up discussion.

2



X	2. Take notes on the main topic of compound assignment operators.
X	3. Complete the CSAwesome readings and practice on compound assignment operators.
X	4. Take the AP Classroom's Big Idea Quiz on expressions and assignment statements.

Is there anything on the list above that isn't yet completed? If so, please explain why.

Ans:

Next Lesson

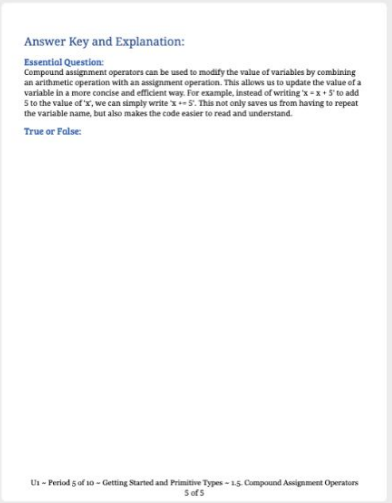
In our next lesson, we will be discussing casting and ranges of variables. We will explore how to convert between different data types and how to determine the range of values that a variable can hold. Be prepared for some hands-on practice and problem-solving activities!

Today's End of Lesson Quiz

Quiz Title: 1.3 Expressions and Assignment Statements | Summary: In this lesson, we learned about expressions and assignment statements. We explored how to evaluate and create expressions, as well as how to use assignment statements to store values in variables. We also discussed the order of operations and the different types of operators that can be used in expressions.

The end

3



Answer Key and Explanation:

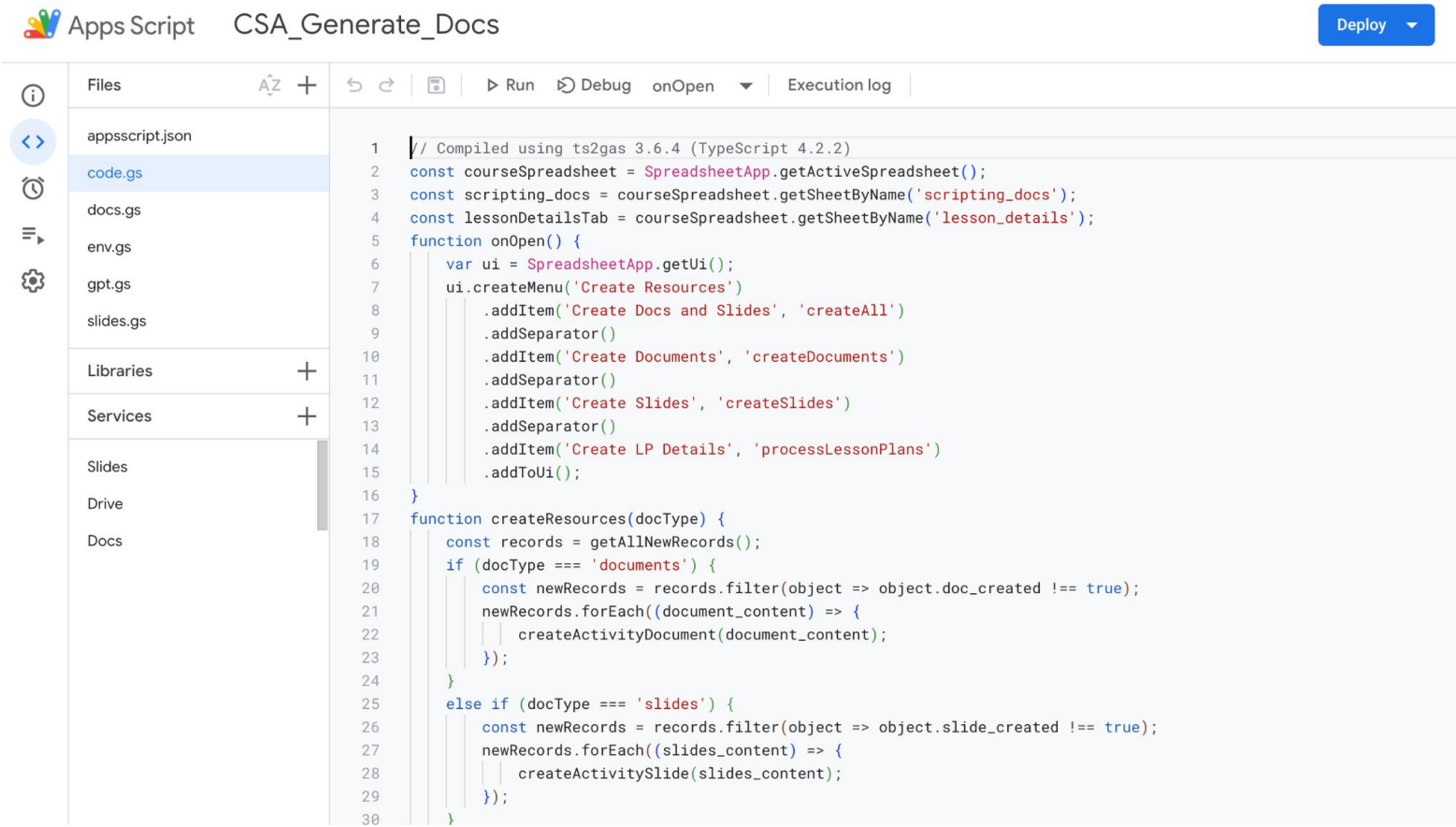
Essential Question:

Compound assignment operators can be used to modify the value of variables by combining an arithmetic operation with an assignment operation. This allows us to update the value of a variable in a more concise and efficient way. For example, instead of writing `x = x + 5` to add 5 to the value of 'x', we can simply write `x += 5`. This not only saves us from having to repeat the variable name, but also makes the code easier to read and understand.

True or False:

4

Example Lesson Activity Document after running the 'Create Documents menu command.



Apps Script Code example

1. It took longer than I expected to get a prompt and model type to provide consistent results.
2. Definitely a tool that can be useful now and will help save time for curriculum providers going forward.
3. I will keep using this for other courses and see how generalized it can be so that I can simple update the lesson_details tab and have helpful activity documents as well as lesson slides.
4. I hope you found this interesting and can use something in this project to help you become more efficient in your lesson preparation 😊