1. COMMON INSTRUCTIONAL FRAMEWORK

INTRODUCTION

Most traditional GED programming is focused on preparing students to acquire enough skills to pass the test. Thus, the majority of GED holders find themselves inadequately prepared both for social and emotional as well as academic demands of postsecondary education. Preparing students especially those with lower skills to pass the GED test and acquire the broad range of skills and competencies needed for postsecondary success requires effective teaching practices premised on a powerful instructional framework that integrates foundational skills in literacy and numeracy. One such framework is JFF's Curriculum and Instructional Framework. This tool lays out the six instructional strategies that constitute JFF's Curriculum and Instructional Framework and provides sample GED to College lesson plans that the stratregies. Teachers are encouraged to adapt these lesson plans and activities for their own classroom.

JFF's Curriculum and Instructional Framework consists of six instructional strategies drawn from University Park Campus School in Worcester MA and are being used in Early College High Schools around the country and in Back on Track schools in Philadelphia, PA and Portland, OR.

Collaborative Group Work: Collaborative group work involves bringing students together in small groups for the common purpose of engaging in learning. Effective group work is well planned and strategic. Students are grouped intentionally with each student held accountable for contributing to the group work. Activities are designed so that students with diverse skill levels are supported as well as challenged by their peers. Collaborative group work uses questioning, scaffolding and classroom talk and centers literacy groups.

Writing to Learn: Writing to learn is a strategy through which students can develop their ideas, their critical thinking ability and their writing skills. Writing to learn enables students to experiment every day with written language and increase their fluency and mastery of written conventions. Writing to learn can also be used as formative assessment and as a way to scaffold mid- and high-stakes writing assignments and tests.

Literacy Groups: Literacy groups provide students with a collaborative structure for understanding a variety of texts and engaging in a higher level of discourse. Group roles traditionally drive literacy groups by giving each student a role to play and a defined purpose within the group. The specific roles or discussion guidelines may vary for different content areas, lengths of texts, or student level of sophistication using this strategy, but the purpose of literacy groups is to raise student engagement with texts by creating a structure within which they may do so.

Questioning: Questioning challenges students and teachers to use good questions as a way to open conversations and further intellectual inquiry. Effective questioning (by the teacher and by students) deepens classroom conversations and the level of discourse students apply to their work. Teachers use this strategy to create opportunities for students to investigate and analyze their thinking as well as the thinking of their peers and the authors that they read in each of their classes.

> JFF's instructional coaching package helps schools build college readiness by implementing these six strategies in every classroom in a school and creating consistency of language and practices across all subject areas.

Scaffolding: Scaffolding helps students to connect prior knowledge and experience with new information. Teachers use this strategy to connect students with previous learning in a content area as well as with previous learning in an earlier grade. Scaffolding also helps facilitate thinking about a text by asking students to draw on their subjective experience and prior learning to make connections to new materials and ideas.

Classroom Talk: Classroom talk creates the space for students to articulate their thinking and strengthen their voice. Classroom talk takes place in pairs, in collaborative group work and as a whole class. As students become accustomed to talking in class, the teacher serves as a facilitator to engage students in higher levels of discourse. Classroom talk opens the space for questioning, effective scaffolding and successful collaborative group work and literacy groups.

BACK ON TRACK

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2. LESSON: INTRODUCTION TO THE GED ESSAY

SUBJECT/GRADE LEVEL:
GED

LESSON TIME:
90 minutes

LESSON SYNOPSIS:
Students will determine criteria for a "good" GED essay and then use that list to write an essay.

NB: this lesson makes the assumption that the best way to teach any genre of writing is to provide students with an example or anchor paper and them let them deconstruct it to form a list of "rules" for that genre. I have taught different kinds of poetry like this, as well as essays, outlines, book and movie reviews, business letters, and characterization. If teachers can ask good questions, students can read and notice the conventions of any genre. This lesson assumes that students have probably done this kind of exercise before. This kind of student-generated work scaffolds easily to research papers, note-taking, and other college-ready skills.

LEARNING OUTCOMES - STUDENTS WILL BE ABLE TO:
> Analyze writing for conventions and patterns
> Write a GED-style 5-paragraph essay

MATERIALS NEEDED:
Sample GED (or other kinds) essay(s), overhead projector and essay on a transparency. This can also be done by handing out copies of the essay and making lists on a board if an overhead projector isn't available.

TEACHER NAME:

NAME OF LESSON:

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STEP 1	BUILD BACKGROUND		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Questioning Classroom Talk Writing to Learn Scaffolding	Ask students what they already know about the GED essay. What does it have to have? What should it not have? What do you need to do to get a good score? This will activate prior knowledge as well as allow the teacher to address any student misconceptions.	Think-pair-share: Students read the questions, take a minute to jot down some ideas, share those ideas with a partner to make a longer list, then share out the list so that there is a whole-class-generated list. A student or the teacher can record while students share out.	15 min. (2 writing, 3 talking, 10 sharing)

STEP 2	INVESTIGATE ESSAYS		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Collaborative Group Work Classroom Talk Questioning	Hand out the sample GED essay. Explain that this essay would receive a top score. Ask what they notice about it, and annotate as they observe different parts. Make sure to ask about the function of each of the sentences/paragraphs. After they have listed a few, have them work in pairs to find some more. *The key ideas to get at here are: topic sentence introduces the subject of the essay, the writer's argument or position is stated in the intro paragraph, the body paragraph topics are mentioned in order in the introduction, the essay has 5 paragraphs (intro, 3 body, conclusion), each body paragraph discusses only one topic, the conclusion summarizes everything and/or adds closing thoughts but uses different wording than the introduction. Students will notice other things as well.* Ask students a quick reflection question: is the list of what you think an essay has to have now different from before you read the essay? How is it different?	Students share out what they are seeing. Students work in pairs to make a common list of noticings about essay structure and "do's" for the GED essay. They are working to answer the question "What is it about this essay that makes it a high-scorer?" Students share out their list while the teacher annotates the essay with their ideas. As a whole class, students take a minute to answer the reflection question.	25 minutes 5 for share out, 10 for group work, 5 for share out of pair work, 5 for reflection

STEP 3	APPLICATION		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Writing to learn	Have students use the class-generated list and the sample essay to guide them through the writing of their own essay. Hand out a sample essay topics and paper and let students construct their essays. When students finish before other students, allow them to proofread using the list. If more scaffolding is needed before students write their own essays, have students write an essay from just an introduction, or have them write the introduction to a given essay using the "rules" they came up with before.	Students can choose one of the essay topics and write a draft essay.	30 min.

LESSON CLOSING	SYNTHESIZE NEW LEARNING		
Instructional Strategy	**Closing Teacher Activity**	**Closing Student Activity**	**Time (min)**
Questioning	Ask the class the following questions: What did you learn about the GED essay that was new for you? What, if anything, was challenging about writing the essay? What are you still confused about?	Give sufficient wait time, then have students talk about their answers to these questions	5-10 minutes

ASSESSMENTS OF LEARNING OUTCOMES

Assessment 1: Use their draft essays to determine what they still need to learn about/where they are struggling (grammar, structure, sequencing, etc.) Prepare subsequent lessons based on student needs.

Assessment 2: Responses during lesson closing should be noted as formative assessments.

3. LESSON: POLITICAL CARTOONS

SUBJECT/GRADE LEVEL:

GED to College

LESSON TIME:

90 minutes

LESSON SYNOPSIS:

Students move from common symbols that they know and articulating relationships to applying those skills to political cartoons.

NB: this lesson expects that students will have learned about making inferences

LEARNING OUTCOMES - STUDENTS WILL BE ABLE TO:

> Explain what symbols are as well as how and why they are used

> Articulate visual relationships between symbols

> Apply these concepts to interpreting political cartoons

MATERIALS NEEDED:

Collection of common informational, religious, political symbols—these can be pulled easily from the internet

Collection of political cartoons from the GED, newspapers, internet, etc.

Chart paper and markers

QAR sheet

GED political cartoon practice questions

Paper and pencils for those who wish to make their own political cartoons

TEACHER NAME:

NAME OF LESSON:

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STEP 1	ACTIVATING PRIOR KNOWLEDGE		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Scaffolding Collaborative group work	Ask students what a symbol is, take answers and see if students can develop a class definition. Post common symbols around the room on chart paper and have students decide on and write their meaning, their usage, their associations.	Quick share out of ideas Students rotate around the room in pairs to identify what the posted symbols mean and make comments about other students' answers.	15 minutes

STEP 2	BUILD BACKGROUND/INVESTIGATE CARTOONS		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Scaffolding Writing to learn Collaborative group work Classroom talk	Review with students what inferences are and how they are made: combing prior knowledge with new information to make an educated guess about something that's not stated directly. Model for students how to interpret symbols and relationships with political cartoons by doing a think-aloud where you identify symbols, describe what's happening in the carton, and then make inferences about what it means, what the author's opinion is, and what makes you think that. Also model what you can do when you come across symbols you don't understand. Ask students to work in their groups and to each choose a task for the cartoon they are given, then switch tasks for subsequent cartoons. Make sure each group gets at least three different cartoons, but have extras on hand in case a group finishes quickly with those three. Decide whether all groups are working on the same cartoons or not. Walk around and conference with students as they work, asking clarifying questions where necessary.	Students give some examples of inferences they make on a day-to-day basis by way of reviewing the concept. Students can watch, listen, and ask clarifying questions. Students each choose a task/role: symbol decoding, visual description, making inferences about the picture and the author. In their groups, they should make sure that each person gets at least one chance to do each o the three tasks. Students record work on chart paper and can use the internet for assistance. If there is time, students can share out their work.	45 minutes: 15 to review and model, 30 for students to work in groups on their cartoons

STEP 3	PRACTICE AND APPLICATION		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Writing to learn Questioning	Give students a choice of activity here: 1. Generating their own political cartoon 2. Answering GED practice questions with political cartoons. 3. Using QAR to develop questions about political cartoons	Students work individually on their choice of activity. If they do not complete it, have them complete it for homework or let it be part of the next lesson.	15 minutes

LESSON CLOSING			
Instructional Strategy	**Closing Teacher Activity**	**Closing Student Activity**	**Time (min)**
Classroom talk	Give pairs of students each a different political cartoon. Ask them to work with their partner and come up with a quick interpretation: how would they explain this cartoon to someone?	Think-pair-share: students talk to their partner, then share their cartoon and analysis with the entire class	15 min: 5 minutes for pairs, 10 for report outs

ASSESSMENTS OF LEARNING OUTCOMES

Assessment 1: Think-pair-share lesson closing

Assessment 2: Completed individual work

4. LESSON: GRAPHS, CHARTS, AND TABLES

SUBJECT/GRADE LEVEL:
GED to College

LESSON TIME:
60-90 minutes, depending

LESSON SYNOPSIS:
Students will use literacy group roles to analyze graphs, tables, and charts; then develop a method for "attacking" any graph or chart they see.

NB: this lesson requires that students be taught some reading strategies/lit group roles beforehand. I recommend teaching them one by one and letting the class practice with the role, then starting to mix them together and letting students choose which ones they like to use and which ones best suit their learning styles.

LEARNING OUTCOMES - STUDENTS WILL BE ABLE TO:
> Review what they know about graphs, tables, and charts

> Employ different strategies for interpreting and analyzing graphs, tables, and charts

> Formulate a "plan of attack" so that they will feel confident reading any new data visual that they encounter

MATERIALS NEEDED:
Lit group role cards, 5-6 different graphs, 5-6 different charts and tables (these can be right off the GED science, social studies, or math practice exams, or they can be from the internet, newspapers, etc.—they can also be subject-specific so that this lesson can connect with whatever the class is studying), model or exemplar of finished product so students know what it should look like, group work rubric (optional)

TEACHER NAME:

NAME OF LESSON:

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STEP 1	BUILD BACKGROUND/ACTIVATE PRIOR KNOWLEDGE		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Scaffolding Writing to Learn Classroom Talk	Ask students to work with a partner and write down everything they know about graphs, tables, and charts—why they are used, what are the different types, what kinds of components they have. 1 student from each pair shares out, only adding what has not already been said. Record their answers as a mind-map, T-chart, or Venn Diagram on the board.	Think-pair-share: What is a graph? What is a chart or table? Where do you see them? What are different types? Why and when are they used?	15-20 minutes

STEP 2	INVESTIGATE GRAPHS, CHARTS, TABLES		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Literacy Groups Classroom Talk Writing to Learn	Split students into groups of three. Give each group the roles and have them read through them and ask any clarifying questions they may have. You may have to ask some check-for-understanding questions to make sure students are clear on the tasks the roles are asking of them. Explain to students that they will be creating three visual displays about graphs tables and charts. Let them know that they can pick any of the roles to use but they cannot have the same role at any given time as another member of the group. Let them know also that after they finish compiling their information about the first graph/table/chart that they have to switch to a different role for the next one. Show them a model that you have created beforehand: a piece of chart paper with a graph, table, or chart taped to it and the products of three different roles written underneath. If you've done the lesson before, use prior student work as the exemplar. Hand out a selection of graphs, tables, and charts to each group for them to choose from, or strategically pick items you want that group to work on. Walk around and conference with students as they work. You may want to ask each group to share out one of their pieces.	Students read through the six possible roles and ask any questions they may have. Make sure students are clear about the group tasks and responsibilities by asking them questions about the exemplar and the directions. Students choose a role and begin working on one of the graphs, tables, or charts. When they are finished they should pick a new role and do the same thing with a new graph/table/chart. In order to get enough practice with these, each group should complete at least three different ones. Students should also take turns doing the writing—one group member should not be making every visual display of work.	30-45 minutes

STEP 3	SYNTHESIS		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Collaborative group work	Ask students to work with their fellow group members and develop a set of steps to take when trying to analyze any new graph, table, or chart. These could include things like 'look for a title' or 'find the definitions of any words you don't understand' or 'make a list of all the types of information found in this graph.'	Students work together to come up with a list of instructions for analyzing any new table, chart, or graph. When they have completed it, they should share their steps with the class, and should come to some consensus to build a class "plan of attack" for tables, charts, and graphs.	15-20 minutes

ASSESSMENTS OF LEARNING OUTCOMES

Assessment 1: group work and class "plan of attack"

Assessment 2: homework or individual work—GED or other practice questions/tasks with graphs, tables, and charts

5. LESSON: MEAN, MEDIAN, MODE

SUBJECT/GRADE LEVEL:

GED to College

LESSON TIME:

120 minutes minimum

LESSON SYNOPSIS:

Students explore that how's, why's and when's of using mean, median and mode to summarize data, as well as solving algebraic problems with mean, median, and mode.

NB: students need to have experience with balancing and solving basic algebraic equations. This is likely a two-day lesson, where on the first day students discover the differences and procedures behind mean median, and mode and on the second day they apply basic knowledge of algebra to solving mean, median, and mode problems.

LEARNING OUTCOMES - STUDENTS WILL BE ABLE TO:

> Complete operations and equations using mean, median, and mode

> Articulate the differences between mean, median, and mode

> Choose whether to use mean, median, or mode depending on a given situation

MATERIALS NEEDED:

Mean, median, mode group and pair work packet, dictionaries, internet access (optional) chart paper so groups can present their work (optional)

TEACHER NAME:

NAME OF LESSON:

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PART I

STEP 1	BUILD BACKGROUND/ACTIVATE PRIOR KNOWLEDGE		
Instructional Strategy	Teacher Activity	Student Activity	Time (min)
Questioning Scaffolding	Elicit from sts. What is an average? How do we calculate average? What are situations where we need to find average? (Allow any and all student answers, record these.)	Students contribute answers and explain their schema.	5 minutes

STEP 2	INTRODUCE NEW LEARNING		
Instructional Strategy	Teacher Activity	Student Activity	Time (min)
Collaborative Group Work Writing to Learn	Divide students into hetrogenously skilled groups of three. Explain that each person will have a task and have them read the directions on the first page of the packet. Circulate/conference with groups as they are working. Record their definitions and see if you can come to a class consensus for each one.	Students should work in groups of three to find the definitions of the words, then share out what they have found.	15 minutes

STEP 3	INVESTIGATE PROCEDURES		
Instructional Strategy	Teacher Activity	Student Activity	Time (min)
Collaborative group work Writing to learn Classroom talk	Now that students have definitions for the words, have them work in their groups and use the examples to try and figure out how each one is found. Note: if students get frustrated, see if they can explain the methods in words, then have another group member write down what they say. After they share out, have them discuss what to do with data sets where there are multiple entries for a value, as in the outlier example.	Students should use the definitions and the examples to help them develop written procedures for finding mean, median, and mode. They will answer the three questions that come after the examples. Have them share out what they have come up with. Students then work together to solve the outlier problem and record their ideas. They then continue to work on the application and critical thinking problem: deciding when and why to use one method over another. If there isn't time, have them complete this for homework or as the warm-up for the next class.	20 minutes 20 minutes

LESSON CLOSING			
Instructional Strategy	**Closing Teacher Activity**	**Closing Student Activity**	**Time (min)**
Questioning Writing to learn	Discussion and/or writing questions: What are some situations where you might want to use each? What did you notice about the answers you got using the same data set but different methods of finding average? What's the problem with outliers?	Students can write and discuss, or just do one of those.	10 minutes

ASSESSMENTS OF LEARNING OUTCOMES

Assessment 1: group work turned in

Assessment 2: lesson closing

PART II

STEP 1	BUILD BACKGROUND		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Classroom talk Scaffolding	What do we mean when we talk about balancing and solving equations? What are we trying to find and how do we find it? Provide some basic equations for students to solve. Walk around and conference with students as they work. Ask them to explain their methods for solving.	Students contribute answers and explain their schema. Students work in pairs to solve the equations. Have pairs share out.	15 minutes

STEP 2	INVESTIGATE EQUATIONS		
Instructional Strategy	**Teacher Activity**	**Student Activity**	**Time (min)**
Collaborative Group Work Writing to Learn	Divide students into hetrogenously skilled groups/pairs. Have them work on completing the mean median and mode packet they began yesterday—today they are solving algebraic problems using mean, median, and mode. Circulate/conference with groups/pairs as they are working. Have them share out as they complete each part, or have them check with other groups/pairs to see if they got the same answers.	Students work together on writing equations, then writing equations and solving them, and finally designing problems for other groups to solve.	30 minutes

LESSON CLOSING			
Instructional Strategy	**Closing Teacher Activity**	**Closing Student Activity**	**Time (min)**
Classroom talk Questioning	Conference with groups/pairs as they work. Ask questions to prompt thinking if students get stuck.	Groups must solve each others' problems on chart paper and explain what they did.	15 minutes

6. MEAN, MEDIAN, MODE

Mean median, and mode are also called "measures of central tendency." They are three different ways of generalizing (or calculating a representative number) from a group of numbers.

In your group, please answer the following questions. One person should look up each word and write the definition, as well as explaining to the other two group members. You may use a dictionary or the internet.

1. What is the definition of mean?

2. What is the definition of mode?

3. What is the definition of median?

Now that you have some idea what these three terms mean, let's figure out how to find each one using a set of data. Read the examples below and see if you can figure out how I found each one, and what the differences are between mean, median, and mode.

Example 1:

I sell candy bars for a local fundraiser. These were my sales totals for this week:

Day	# sold
Monday	3
Tuesday	12
Wednesday	8
Thursday	4
Friday	8

The mean # of candy bars I sold for the week was 7.

The median was 8.

The mode was 8.

Example 2:

These were home sales on Baker Street for the month of June:

Home 1 sold for $112,000

Home 2 sold for $135,000

Home 3 sold for $98,000

Home 4 sold for $128,000

The mean price of homes sold on Baker Street in June was $118,250.

There was no mode.

The median price was $120,000.

Example 3:

Marta is the clumsiest server ever. She has been breaking glasses every week since she started.

Week 1 she broke 11 glasses, Week 2 she broke 3 glasses, Week 3 she broke 5 glasses, Week 4 she broke 8 glasses, and Week 5 she broke 3 glasses.

The mean number of broken glasses was 6.

The mode was 3.

The median was 5.

Using the definitions and the examples above, what is MEAN and how do you find the mean of a group of numbers? Write out the steps as if you were explaining to someone else how to do it.

Using the definitions and the examples above, what is MODE and how do you find the mode of a group of numbers? Write out the steps as if you were explaining to someone else how to do it.

Using the definitions and the examples above, what is MEDIAN and how do you find the median of a group of numbers? Write out the steps as if you were explaining to someone else how to do it. *(Hint: there is something tricky you have to do if there is an even number of values in your data set.)*

The Influence of Outliers: an outlier is a number that doesn't seem to fit with the rest of the numbers. What is the outlier in this set of data?

Value per House	Number of Houses
$100,000	2
$175,000	5
$200,000	6
$800,000	1

Find the mean and median with the outlier. *(Hint: how many houses sold at each price and how do you work with this data set?)*

How did the outlier change the mean? How did the outlier change the median?

With the new set of data, which measure of central tendency would best represent the data?

There are 11 streets in the Borough Hill Neighborhood. The average income level for a family of 4 on each of those 11 streets is as follows:

$15,000, $12,000, $10,000, $28, 000, $20,000, $10,000, $19,000, $18,000, $17,000, $75,000, and $23,000 per year.

Find the mean, median, and mode of this data set.

The neighborhood association is trying to convince Smith Bank to open a branch in Borough Hill. Which way of summarizing the income level data should they use to make a convincing argument to the bank's president? Why should they use that method over the other two methods?

The neighborhood association is also working with a local developer and the city to try and get more affordable housing built in Borough Hill. Which number should they present to the developer to make the case that affordable housing is crucial for their neighborhood? Why?

WRITING EQUATIONS:

Given what you now know, please work in your group to develop equations for the following:

Mean of: ✎, ✂, ☎, ★, ✄,✋

Median of: 4x, 2x, 4x+3, 8x, 7x, 5x

1. Suppose your grades on three history exams are 80, 93, and 91.What grade do you need on your next exam to have a 90 average on the four exams? (Hint: write the equation first, then use your knowledge of balancing equations to solve.)

    If 100 is the highest possible score on the fourth exam, is it possible to raise your average to 92? Explain.

2. Suppose your grades on four health exams are 99, 86, 76 and 95.What grade do you need on your next exam to have a 91 average on the four exams?

3. You have a mean score of 84 after taking five 100-point tests. What do you need to score on the sixth 100-point test to have a mean score of 85?