

# Lesson 14: FRQ Practice

45 minutes

## Overview

**How will I use what I know about 1D arrays and conditionals to answer a Free Response Question?**

Students practice developing solutions to AP CSA FRQs on a mock Arrays FRQ. Students apply decomposition and annotation strategies to identify the key components of the problem and validate their solutions using Scoring Guidelines.

## Agenda

**Warm Up (10 minutes)**

**Annotate**

**Activity (30 minutes)**

**Pseudocode**

**Implement**

**Scoring and Review**

**Wrap Up (5 minutes)**

**Give One, Get One**

**Assessment (Optional)**

## Objectives

Students will be able to:

- Implement methods based on a given set of specifications
- Plan an algorithm using pseudocode

## Preparation

- Print copies of the BingoCaller FRQ handout (one for each student)
- Print copies of the BingoCaller FRQ Scoring Guidelines (one for each student)
- Gather sticky notes or scrap pieces of paper (one for each student)
- Check the **Teacher's Lounge** for verified teachers on the CSA Forum to find additional strategies or resources shared by fellow teachers

## Links

**Heads Up!** Please make a copy of any documents you plan to share with students.

For the students

- **BingoCaller FRQ** - Handout
- **BingoCaller Scoring Guidelines** - Handout


## Teaching Guide

## Warm Up (10 minutes)

### Annotate

#### *Remarks*


Today, you will complete a free response question called BingoCaller almost completely on your own. To approach this problem, let's start by using our annotation strategies.

 **Do This:** Click through the animated slide to review the annotation strategies.

 **Distribute:** Give each student a copy of the BingoCaller FRQ handout and a sheet of scratch paper.

 **Do This:** Direct students to individually annotate the FRQ.

**Group:** Place students in groups of two.

 **Do This:** Have students compare their annotations with their partners.

 **Discuss:** *What questions do you have about approaching this free response question?*

**Discussion Goal:** Students share any misunderstandings or points of confusion they have about the FRQ.

#### Teaching Tip


Point out words in the directions or starter code when addressing student questions.

## Activity (30 minutes)

### Pseudocode (10 minutes)

#### *Remarks*

Before writing your solution in Java, let's plan it using pseudocode. Writing your algorithm out in pseudocode helps you plan your algorithm without worrying about the syntax rules of the programming language.

 **Do This:** Direct students to plan their solutions for parts A and B using pseudocode on their scratch paper.

#### Teaching Tip

After five minutes, you can suggest that students move on to the second half of the FRQ.

### Implement (10 minutes)

#### *Remarks*

The last step is to write your solution in Java. Using your pseudocode, write your solution to the FRQ. You will have 10 minutes to complete this task.

 **Do This:** Direct students to convert their pseudocode into Java on the BingoCaller FRQ handout.

If students finish early, suggest:

- Trace their code to ensure it is correct.
- Check their solution to ensure it aligns with their pseudocode solution.

## Scoring and Review (10 minutes)

**Distribute:** Give each student a copy of the BingoCaller FRQ Scoring Guidelines.




**Group:** Place students in groups of two.

**Do This:** Ask students to assess their work with their partners using the BingoCaller FRQ Scoring Guidelines.

### *Remarks*

Congratulations on completing another FRQ! As with any problem we solve in Java, there are multiple approaches to solving an FRQ. Let's explore some approaches to today's FRQ.

**Do This:** Click through the animated slides to discuss the possible solutions to the FRQ. For each solution, reference each row of the BingoCaller FRQ Scoring Guidelines and point out how the solution met those requirements.

-  Implementation for `hasBeenCalled()` method (Part (a))
-  Implementation of the `makeCall()` method (Part (b))
-  Implementation of the `makeCall()` method (Part (b) continued)

## Wrap Up (5 minutes)

### Give One, Get One

**Distribute:** Give each student one sticky note or scrap piece of paper.

**Do This:** Have students respond to the prompt on their sticky note or scrap piece of paper.

**Do This:** Play the music clip to cue the Give One, Get One activity and direct students to participate in a Give One, Get One.

## Assessment (Optional)

**BingoCaller FRQ:** The BingoCaller FRQ handout can be used as an optional formative assessment.



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