LESSON PLAN

Federal Reserve and Open Market Operations

*Learning how the Fed affects the money supply and interest rates to achieve its goals, before and after the Great Recession.*

**Grade level:** 9 - 12

**Relevant standards:**

CEE National Standards:
19 - Unemployment and Inflation; 20 - Monetary and Fiscal Policy

AP Macroeconomics Standards:
Unit IV - Financial Sector; Unit V - Stabilization Policies

Developed by Timothy McCollough
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<td>1</td>
<td>Students will understand:</td>
<td>Prior Knowledge. This lesson will generally take place after students have learned fiscal policy, the role and function of money, money markets and loanable funds markets.</td>
<td>Watch MRU’s, “Monetary Policy and the Fed”</td>
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<td></td>
<td>1) Goals of the Fed: stable growth, low inflation, low unemployment</td>
<td>(0) Most Powerful People game (5 min) (1) Practice Questions from MRU video for discussion of Fed goals and powers (10 min) (2) Review Fed goals w/ AP Question (5 min) (3) Explain/discuss money supply, OMOs (15 min) (4) Chair the Fed Game (as individuals) (15 min) (5) Debrief of game. (10 min) (6) Exit ticket: AP Q on interest rate effects (5 min)</td>
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<td>2) How federal funds interest rate affects growth, unemployment and inflation</td>
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<td>2</td>
<td>Students will understand:</td>
<td>(1) Exit Ticket review + Practice Questions from MRU video for discussion of OMOs (10 min) (2) Role play: Students as banks and Fed (5 min) (3) AP Q: Fed effects on interest rates (5 min) (4) Chair the Fed Game (class as FOMC) (30 min) (5) Debrief of game. (5 min) (6) Exit Ticket: 3 Takeaways from the individual v class games of Chair the Fed (5 min)</td>
<td>(1) Watch first minute of this Trump interview (2) Watch MRU video, “How the Fed Works: After the Great Recession”</td>
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<td>2) How the Fed can affect the economy with interest rate adjustments via the FOMC.</td>
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<td>3</td>
<td>Students will understand:</td>
<td>(1) Article discussion (5 min) (2) The wild 2008 financial crisis (10 min) (3) Practice Questions from MRU video for discussion of OMOs post-2008 (15 min) (4) Writing activity / assessment. (30 min)</td>
<td>Edit and complete final draft of writing activity</td>
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<td>How Fed targets interest rates after 2008 (ie OMOs)</td>
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Lesson Plan Objectives
After completion of the lesson plan, students will be able to:
(1) Explain the role of the Federal Reserve in the economy
(2) Identify and examine the tools of the Fed and their impact on money supply and interest rates
(3) Understand how Federal Reserve interventions have changed since the Great Recession.

Essential Questions
For consideration during this lesson plan:
(1) To what extent can the Fed affect the economy in the short run?
(2) How did the financial crisis of 2008 change how the Fed operates?
(3) How could you design a simple system (or equation) for the Federal Reserve to automatically adjust the inflation rate, given the two variables Unemployment and Inflation Rate?

Learning Sequence
Sequence will vary depending on length of class period, learning groups, and preference. Adjust as needed. (Schedule here is approximate for 60-minute periods.)
Day 1 Objectives
Students will (1) examine the Goals of the Fed: stable growth, low inflation, low unemployment; and (2) understand how the federal funds interest rate affects the economy.

Pre-Class Homework Assignment: Watch MRU video, “Monetary Policy and the Fed”

Day 1 Learning Plan

0) Hook = Guessing World’s Most Powerful People
- Write 5 names on the board: Donald Trump, Mark Zuckerberg, Warren Buffett, Theresa May, and Jerome Powell
- Ask the students to rank them based on who they believe is most powerful. Elicit answers as to why students ranked people where they did.
- Reveal ‘surprising’ Forbes list:
  - Trump #3
  - Powell #11
  - Zuck #13
  - May #14
  - Buffett #16
- Preview of this lesson plan = detailing the importance of the Federal Reserve!

1) Review and Discuss (10 minutes)
- Use the Practice Questions from the MRU video, Monetary Policy and the Fed.
- Allow 5 minutes for students to answer the 3 questions. (Best if students write down questions on own paper.)
- Use the questions as jumping-off points to explain and discuss concepts and clear misconceptions
- For example, for Question #1, ask students: Which are powers of the Fed?: Does the Fed buy government bonds? (YES.) Does the Fed control money supply in the long run? (NO.) Does the Fed create money? (YES.) Etc.
- Students can be taking/updating their notes

2) AP question(s) to review (5 min)
- Use #13 and/or #20 from this bank of AP Macro questions.
- Allow time for students to answer Qs.
- Discuss answers, underlying concepts, and clear misconceptions

3) Explain/Discuss Money Supply, OMOs
**MONEY SUPPLY** | Key points:

- The Federal Reserve’s most important job is to regulate the **money supply**. Influencing the the money supply, the Fed can affect **aggregate demand** more than any other institution. Shifts in aggregate demand can greatly influence the economy *in the short run*.

- The Fed has the power to create money, but it doesn’t have to literally print money. It can add reserves to bank accounts held at the Fed. This new money can be given away or lent out in a way that increases aggregate demand.

- The Fed has three major tools to control the money supply:
  1. **Open market operations**.
  2. Discount rate lending and the term auction facility.
  3. Paying interest on reserves held by banks at the Fed.

**OPEN MARKET OPERATIONS** | Key points:

- The Fed changes the money supply by buying or selling government bonds (T-bills)

- To buy a T-bill, the Fed increases the reserves of the seller, usually a bank. With more reserves, the bank makes additional loans, which are used to buy goods and pay wages (AD).

- When the Fed buys bonds, the demand for bonds increases, pushing up the price of bonds and lowering the interest rate. Buying bonds stimulates the economy through higher money supply and lower interest rates.
**FEDERAL FUNDS RATE** | Key points:

- The Fed usually focuses on the Federal Funds rate, or the overnight rate. When media outlets refer to the Fed raising or lowering “the interest rate,” they are referring to the fed funds rate.
- Instead of increasing the money supply, the Fed can buy bonds until the Federal Funds rate drops by the desired amount. The Fed can also increase the Federal Funds rate by selling bonds.
- In 1980, the Fed Funds rate hit an all-time high of 20% (to combat inflation). In 2008, the Fed reduced the rate to 0.25% (to combat recession).

4) **Chair the Fed game (each student plays individually)** (15 min)
*Works best in Safari or Explorer browsers*

- All students open [game website](http://example.com)
- Click “Your Job.” Review with students the aims of the game (ie 16 quarters-- or 16 rounds of play-- to achieve ~5% unemployment and ~2% inflation)
- Students (individually) play the game. Monitor students and record observations.

5) **DEBRIEF Chair the Fed** (10 min)

- To discuss: How’d it go for you?
  - i) Select a couple students who failed, and find out why they failed.
  - ii) Select students who succeeded, and ask them what was successful.
  - iii) Remark on interesting observations *(Could be funny or emotional reactions, technical or logical errors, misunderstanding of interest rate effects, etc)*
- Big vs small adjustments:
  - i) Prompt: When were big interest rate adjustments necessary?
  - ii) Display the historical chart of fed funds rate ([HERE](http://example.com)). Point out examples of big movements in the federal funds interest rate (1974, 1980, 2001, 2008) and have students *predict* what was happening in the economy at...
those times. **Discuss.** (These moments were “shocks” to the economy with varying causes (’74 = oil shock; ’80 = runaway inflation; ’01 = Dot-com bubble burst; ’08 = financial crisis)

iii) To ask: **When were small adjustments appropriate?**

iv) Look at historical chart of fed funds rate ([HERE](#)). Point out examples of little movements in the federal funds interest rate and have students predict what was happening in the economy at those times. (Smoother parts of the business cycle.)

○ Discuss the mechanism of raising the target fed funds interest rate and why it is effective.

6) **Exit Ticket: AP question** (5 min)

*Exit ticket = an item a student submits to the teacher as her “ticket” to exit the classroom*

○ Use #2 from [this bank](#) of AP Macro questions.

○ Allow time for students to answer and *turn in* questions.

**Homework:** Watch MRU video, “[How the Fed Worked: Before the Great Recession](#)”
Day 2 Objectives
Students will (1) understand and examine the tools the Fed used to target the federal funds rate before 2008 and (2) experience how the FOMC functions.

Day 2 Learning Plan

1) **Review & Explain (10 min)**
   - Review Exit Ticket question from previous class
   - Use the *Practice Questions* from the MRU video, *How the Fed Worked: Before the Great Recession*.
   - Allow 5 minutes for students to answer the questions.
   - Use the questions as jumping-off points to discuss concepts
     - For example, for Question #4, ask students: How would the Fed enact expansionary policy? *(One way is by buying treasury bills from banks.)*

2) **Role play.** (Optional for clarity on the exchange between the Fed and banks) *(5 min)*
   - Create a quick role play with several students acting as banks and one student (or the teacher) acting as the Fed. Start with a prompt (ie Fed wants to goose the economy), then let the actors sort out their decisions. Let observing students discuss the effects of the actions. (Optional: Have students pair off and roleplay different scenarios as Fed and bank.)

3) **AP question(s) to review** *(5 min)*
   - Use #5 and/or #8 from this bank of AP Macro questions.
   - Allow time for students to answer Qs.
   - Discuss answers, underlying concepts, and clear misconceptions

4) **Chair the Fed game** *(whole class participation)* *(30 min)*
   - Playing the game this time will be a unique experience for the students. The class will act as the FOMC (Federal Open Market Committee). They will reach a consensus decision on adjusting the federal funds interest rate.
   - Sort the class into presidents of the 12 regional Federal banks *(for large classes, 2-3 students can act as one bank president)*
   - Teacher (or an adept student) will act as Fed Chairperson
○ Teacher to project the game website (HERE)
○ Review aims of the game (ie 16 quarters-- or 16 rounds of play-- to achieve ~5% unemployment and ~2% inflation)

○ For each round:
  (i) One bank president proposes a decision (ie “The Bank of Cleveland proposes to raise the federal funds interest rate by 1.25% to 5.75%.”)
  (ii) If another bank president “seconds” the nomination, a discussion ensues, where various viewpoints are heard. Fed Chair to moderate the discussion.
  (iii) After discussion, a vote occurs. Each bank president gets 1 vote (Yea or Nay). If a majority of bank presidents support the proposal, it is enacted. If the proposal is rejected, repeat the process of proposal-second-discussion-vote. 6-6 ties are broken by Fed Chair. (This is not exactly how the real FOMC works, but it’s a decent approximation!)
  (iv) Teacher implements the FOMC decision. (Teacher adjusts the rate and pushes “GO”)
  (v) Option: Ask students how Fed would enact the FOMC decision (ie Would the Fed buy or sell bonds? etc)
  (vi) Repeat until all 16 rounds are played.

(5) DEBRIEF Chair the Fed (5 min)
  ○ Remark on interesting observations
  ○ Discussion prompts
    (i) Why was this round more/less successful than when you played as individuals? (consensus/cooperation, experience; wisdom of crowds, etc)
    (ii) How similar is this to the real FOMC?

(6) Exit Ticket: (Reflection writing) Have students write “3 Big Takeaways” from the two Chair the Fed games. (5 min)

Homework: (1) Watch first minute of [this Trump interview](#) and (2) Watch MRU video, [How the Fed Works: After the Great Recession](#)
Day 3 Objectives

Students will understand and examine the tools the Fed uses to target the federal funds rate after the Great Recession.

Day 3 Learning Plan

1) **Discuss Trump interview** to highlight the independence of the Fed and its role in the US government. (5 min)
   Optional: Have a 2-3 question quiz to ensure students read article, and to begin discussion.

2) Make students not just aware of the 2008 financial crisis, but let them feel how scary it was! (10 min)
   - Watch and discuss [this clip](#) from *Too Big to Fail* explaining the financial crisis.
   - Watch and discuss [this clip](#) from *Wall Street 2* highlighting the panic.
   - Solicit questions from students on their confusions (there will be many).
   - Follow-up discussion with students.

3) **MRU video quiz + explanation** of new Fed tools (post-2008) to affect interest rates. Ensure students understand the Fed’s new tools and how they affect interest rates. (15 min)
   - This material can be difficult and it is not essential that students understand every detail. The after-video quiz is a good opportunity for an optional extra-credit assignment.
   - The important takeaway is that new tools, such as quantitative easing, allowed the Fed to target their impact to specific sectors of the economy. Quantitative easing is the Fed’s swapping of money for assets other than t-bills. Since the Fed began using these tools, the importance of Open Market Operations has diminished.

4) **Assessment / Writing activity.** (30 min)
   Have students answer the following prompt in 600 words or less:

   “You are an intern for the president of the Federal Reserve Bank of New York. The FOMC meeting is coming up, and you are tasked with giving 3 TALKING POINTS to the president for the meeting. You are to include:
(1) one specific interest rate recommendation,  
(2) rationale for this decision, and  
(3) what actions you recommend the Fed take to achieve this interest rate.”

Important for students:

○ Ensure your writing is strong and also appropriate for the audience (ie a FOMC committee).

○ This is similar to Chair the Fed, but whereas the game used fictional information, you will use real data. Check back later to see if students’ recommendations were accurate!

○ Give students links for:
  i) current unemployment data
  ii) inflation data, and
  iii) overall economic activity.
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