

America's Big Year of Climate Action

"We're all part of making this transition happen. This is a transformational moment. It sounds technical and it sounds caught up in legislation and dollars and tax credits. But in the end, we're moving toward a different place."

Dr. Liz Reynolds, MIT Department of Urban Studies and Planning

TILclimate podcast: Today I Learned About America's Big Year of Climate Action

Three Bills, Many Impacts

The three pieces of legislation discussed in the podcast episode all tackle climate change along with a wide array of other issues. They focus on different aspects of the US economy and political system and use different incentive structures.

Each team in your class will become a "mini expert panel" on one of these three laws. You will teach the rest of the class about your law, and then work together to understand how they intersect.

1. **Research:** On the following page, follow the directions to find summaries of your law. Work with your group to understand the law, using the questions provided and any other research methods you may need.
2. **Teach:** Use the instructions in the "Share" portion of the next page to develop a plan to teach your classmates about your law. Be prepared to learn about the other two laws, as well.
3. **Connect:** Reassort into groups that each have at least one representative from each "mini expert panel" Use the mind map exercise to draw connections.

Expert Panel: Inflation Reduction Act

Read All About It

Large federal bills often number into the thousands of pages. Luckily, legislative aides and others write summaries that explain the major parts of any larger bill. In the case of the Inflation Reduction Act of 2022 (IRA), the White House produced fact sheets for each state.

1. Choose two states in different regions of the US. By choosing different regions, you might see differences in the focus of the law in each state. For example, a desert state and an ocean state may have different needs.
2. Visit <https://climate.mit.edu/ed/IRAFactSheets>¹
3. Read the fact sheets for the two states chosen.

Discuss

In your group, discuss the two fact sheets until you feel that all members understand them well enough to describe the basic ideas. Then, consider:

- What differences did you notice between the two states? What similarities?
- What kinds of projects is the IRA designed to support?
- Does this law use more “carrots” (funding, tax rebates, tax cuts, etc.) or “sticks” (regulation, requirements, taxes, etc.)?
- What problem(s) for the United States is this law meant to address?
- Which parts of the summaries do you think are the most interesting or challenging?
- What questions do you still have?

Share

Your job now is to help the rest of your class understand the basics of this law. As you discuss how to teach your classmates, consider:

- What are three main takeaways you think are the most important?
- Are there any fun or useful ways to remember them? (Graphics, songs, catchphrases, memes, etc.)
- Who will be most impacted by this law?

¹ <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/17/state-fact-sheets-how-the-inflation-reduction-act-lowers-energy-costs-create-jobs-and-tackles-climate-change-across-america/>

Expert Panel: Infrastructure Investment and Jobs Act

Read All About It

Large federal bills often number into the thousands of pages. Luckily, legislative aides and others write summaries that explain the major parts of any larger bill. In the case of the Infrastructure Investment and Jobs Act of 2021, the White House produced fact sheets for each state.

1. Choose two states in different regions of the US. By choosing different regions, you might see differences in the focus of the law in each state. For example, a desert state and an ocean state may have different needs.
2. Visit <https://climate.mit.edu/ed/InfraFactSheets>¹
3. Read the fact sheets for the two states chosen.

Discuss

In your group, discuss the two fact sheets until you feel that all members understand them well enough to describe the basic ideas. Then, consider:

- What differences did you notice between the two states? What similarities?
- What kinds of projects is the Infrastructure Law designed to support?
- Does this law use more “carrots” (funding, tax rebates, tax cuts, etc.) or “sticks” (regulation, requirements, taxes, etc.)?
- What problem(s) for the United States is this law meant to address?
- Which parts of the summaries do you find the most interesting or challenging?
- What questions do you still have?

Share

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- Who will be most impacted by this law?

¹ <https://www.whitehouse.gov/build/resources/state-fact-sheets/>

Expert Panel: CHIPS and Science Act

Read All About It

Large federal bills often number into the thousands of pages. Luckily, legislative aides and others write summaries that explain the major parts of any larger bill. In the case of the CHIPS and Science Act of 2022, the White House produced a summary.

1. Visit <https://climate.mit.edu/ed/CHIPSSummary>¹
2. Read the summary.

Discuss

In your group, discuss the summary until you feel that all members understand it well enough to describe the basic ideas. Then, consider:

- What kinds of projects are the CHIPS and Science Act designed to support?
- Does this law use more “carrots” (funding, tax rebates, tax cuts, etc.) or “sticks” (regulation, requirements, taxes, etc.)?
- Which parts of the summary do you think are the most interesting or challenging?
- What problem(s) for the United States is this law meant to address?
- What questions do you still have?

Share

Your job now is to help the rest of your class understand the basics of this law. As you discuss how to teach your classmates, consider:

- What are three main takeaways you think are the most important?
- Are there any fun or useful ways to remember them? (Graphics, songs, catchphrases, memes, etc.)
- Who will be most impacted by this law?

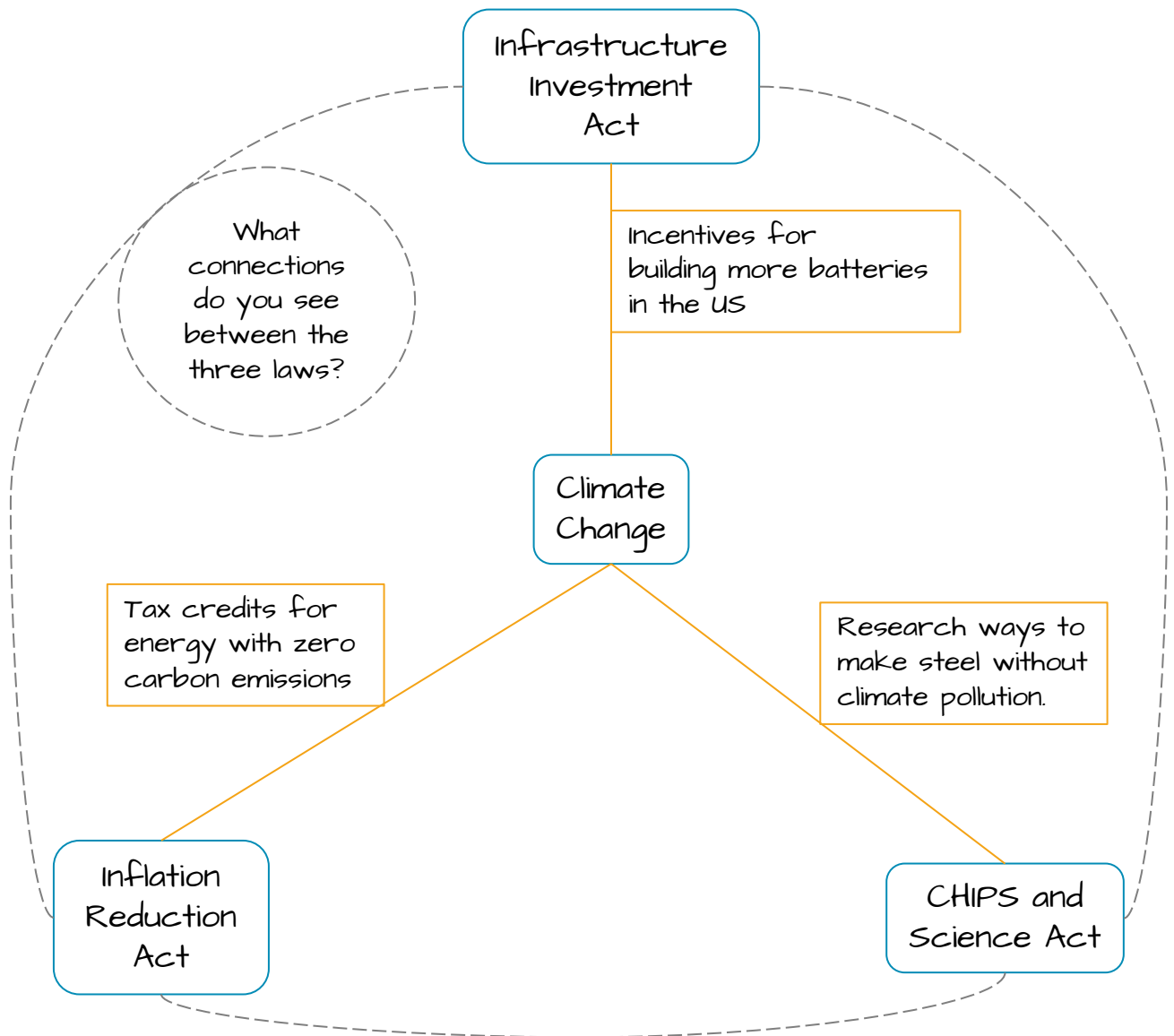
¹ <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/>

Three Laws: Mind Map

Map the Connections

Reassort your groups so that each group has at least one “expert” on each of the three laws.

1. On a large piece of paper, whiteboard, digital whiteboard, or other collaborative platform, write the names of the three laws around the phrase “Climate Change”
2. Draw lines connecting these concepts and write the connection on the line. You may draw as many lines as you can think of. We’ve started with connections from the podcast episode.



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"It is really easy for companies to use a tax credit to make an investment in a state and create benefits for that state and for that community."

Dr. Liz Reynolds, MIT Department of Urban Studies and Planning

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Think Locally

The Infrastructure Investment and Jobs, Inflation Reduction, and CHIPS and Science Acts are federal laws, but many parts of these laws have direct impacts on individual states. You can focus on the predicted influences in your state and make connections to local issues.

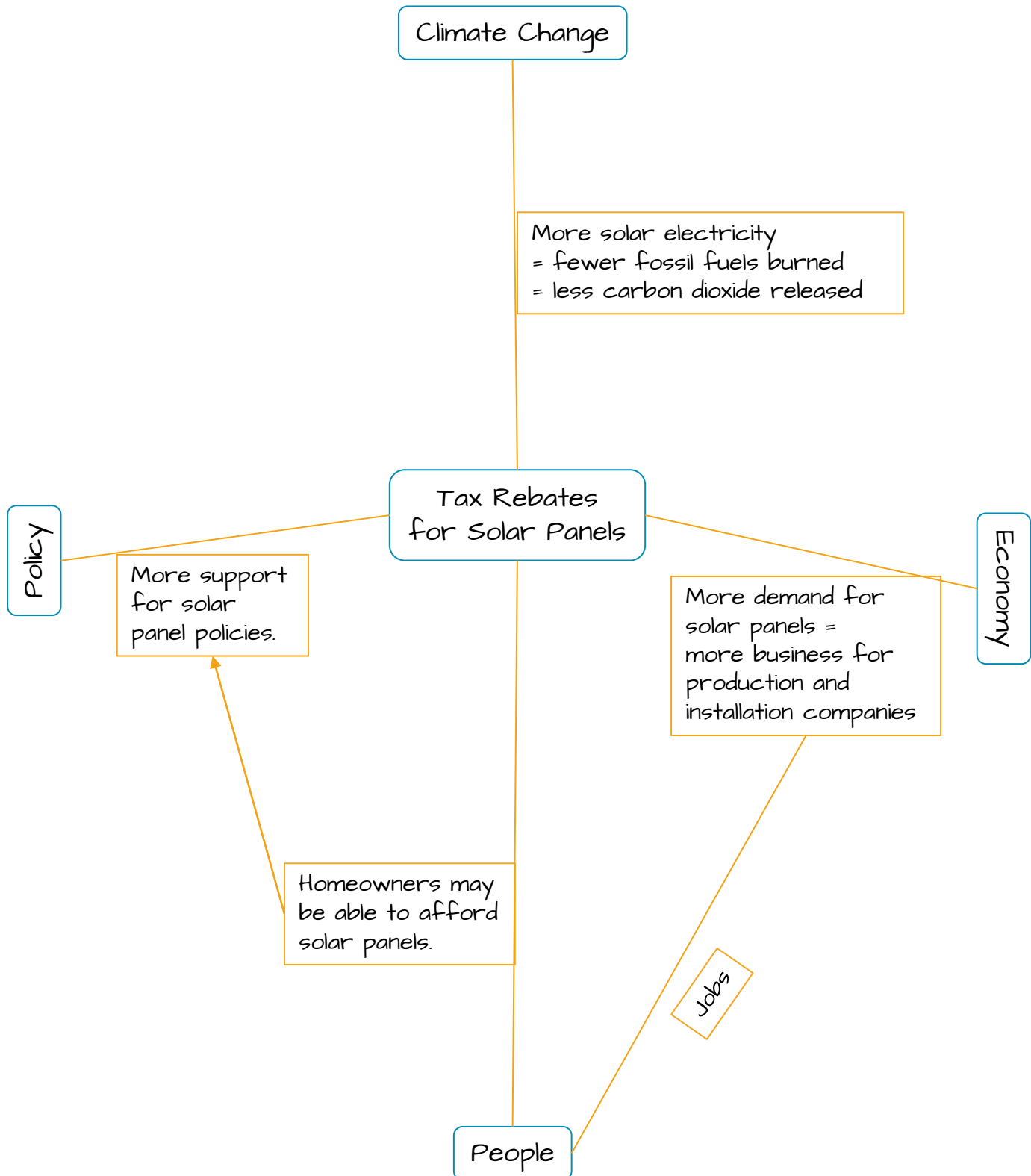
1. Read the fact sheet for your state for either the Inflation Reduction Act or Infrastructure Investment and Jobs Act. (There are not state-by-state fact sheets for the CHIPS and Science Act.)
 - Inflation Reduction Act: <https://climate.mit.edu/ed/IRAFactSheets>
 - Infrastructure Investment and Jobs Act: <https://climate.mit.edu/ed/InfraFactSheets>
2. In your group, choose one predicted impact for your state that most interests you.

Make System-Wide Connections

Systems thinking helps us make connections between ideas and actions that may otherwise seem unconnected. As we find more and more connections, it becomes easier to see how these concepts are related to our everyday lives, our communities, and the people and places we care about.

1. In your group, use a large piece of paper, whiteboard, digital whiteboard, or another collaborative platform.
2. In the center, write your chosen local impact.
3. On the four sides, write Economy, Climate Change, People, and Policy.
4. Draw lines connecting these concepts and write the connection on the line. You may draw as many lines as you can think of, including lines between connections. A simplified example is on the next page.

State Impacts: System Thinking Map



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System Thinking Map: Questions to Discuss

As you build your systems thinking map, discuss some of the following questions with your group. As you discuss, you may find even more places to add connections, new concepts, etc. Feel free to add more notes on a separate piece of paper if your map gets crowded.

Patterns and Concepts

- What patterns do you see in your connections?
- What questions do you have about possible connections?
- Are there any other concepts you should add around the outside?

Promises and Challenges

- What about this topic most interests you? Do you think it could help your community? Why or why not?
- Do you think it could help with climate change or other national concerns? Why or why not?
- What obstacles do you see for this idea?
- Do you think this legislation does an effective job of addressing these issues in your area? Why or why not? Do you think there are ways policymakers could better address these issues?

Imagining the Future

- Imagine you oversee making decisions about how your community will use funding or resources from these pieces of legislation. Which kinds of projects would you promote? Why?
- Who in your state or local government makes decisions about these issues? What would you want to tell them?

Find Local Impacts

Do you have any local examples of your chosen topic? In the example systems thinking map, tax rebates for solar panels might lead to more solar panels on houses or municipal buildings in your community. Search local news to find stories of projects or proposals that may be funded by one of the pieces of legislation you have researched.

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"It is absolutely the case that these bills are very much leaning into more carrots than sticks. Because what we hope to do is invest more in these new technologies. Invest in the innovation, which we're very strong at. Invest in the deployment and the adoption."

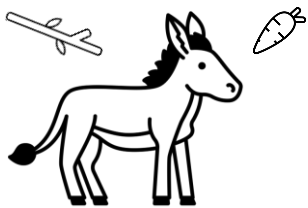
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Design Your Own Climate Bill

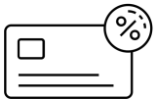
Large-scale bills such as the Infrastructure Investment and Jobs Act, the Inflation Reduction Act, and the CHIPS Act cover a wide and sometimes overwhelming number of kinds of projects and processes. Sometimes, bills are designed to focus on a single area of the economy (like the fuel economy of cars), or a single kind of technology (like capturing CO₂ from power plants). Today, you will design a small climate change bill to have one specific impact.

"Carrots" and "Sticks"



Laws that are meant to encourage behavior change often use a combination of incentives and disincentives to have their intended effect. These are often referred to as "carrots" and "sticks", suggesting a treat offered to an animal, versus a stick used to poke the animal into moving. While there are many ways a law can do this, there are some broad categories, listed on page 11.

Which would you categorize as carrots, and which as sticks?



Tax Credits



Loans



Taxes/Fees



Regulation

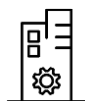
Categories of Climate Change Action

There are many kinds of action that communities can take to slow climate change and adapt to its effects. Broadly speaking, these actions fall into three categories, which are explained on page 10.

Which categories have you seen in your community?



Energy Shift



Energy Efficiency



Climate Adaptation

Images from The Noun Project by Azam Ishaq, SBTS, Ida Desi Mariana, Uta Nomi, Phạm Thanh Lộc, CHARIE Tristan, Zach Bogart, Justin Blake, Alex Quinto, Amethyst Studio, and coloripop

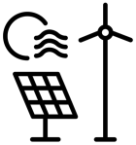
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Climate Actions

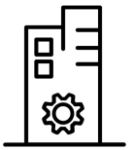
As we burn fossil fuels like coal, oil, and natural gas and cut down forests, we release carbon dioxide (CO₂) into the atmosphere. This CO₂ acts like a blanket around Earth, trapping heat. Trapped heat is warming Earth, the ocean, and the air. Overall, the world is getting warmer, leading to increases in extreme weather, such as storms and droughts.

But we know how to reduce how much CO₂ we add to the atmosphere. Two major categories include: Energy Shift, and Energy Efficiency. Since the climate is already changing and will continue to change even as we reduce the amount of CO₂ we add to the atmosphere, action is also needed in Climate Adaptation.

For each of the three action categories, list specific projects or ideas. These may be things you have seen in your community or heard or read about somewhere else.



Energy Shift: Innovations that allow us to produce energy without producing CO₂ and other pollution. (*Consider: Solar, wind, nuclear, carbon capture, etc.*)



Energy Efficiency: Innovations that help us use less energy, especially in heating and cooling buildings. (*Consider: Replacing heating systems, windows, insulation, etc.*)



Climate Adaptation: Innovations that protect people and places from harmful climate change impacts. (*Consider: Flood prevention, storm warning systems, drought relief, etc.*)

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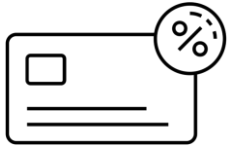
Government Incentives



Governments, whether at the Federal, State, Tribal, County, or City/Town level, have multiple tools available to affect the behavior of businesses, lower levels of government, and individuals.

In terms of climate-related actions, “carrots” may take the form of tax credits and loans that make it less expensive to make or buy climate-friendly technologies or other innovations. “Sticks” may be taxes and fees that make it more expensive to make or buy systems that produce more climate pollution, or regulations that restrict the production or use of climate-polluting technologies.

For each of the four categories, list specific ideas. These may be things you have seen in your community or heard or read about somewhere else.



Tax Credits: Discounts on taxes for individuals or businesses when they buy or use a new or preferred technology or other innovation. *(Consider: Rebates on electric vehicles, etc.)*



Loans: Money for businesses or local governments to invest in new infrastructure, supplies, technologies, or other innovations. *(Consider: Manufacturing upgrades, updated infrastructure, etc.)*



Taxes/Fees: Higher taxes or direct fees on businesses that produce excess climate pollution. *(Consider: Taxes on buying or selling gas, etc.)*



Regulation: Direct restriction on the use or production of climate pollution. *(Consider: Cap-and-trade agreements, etc.)*

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Design Your Climate Bill

While real-life bills usually include hundreds of different provisions, today you will choose a single action and a single tool to achieve that action.

Goal: What is the goal of your bill? What part of the economy does it affect?

(Consider: Manufacturing, construction, energy production, transportation, etc.)

Action: Which of the climate actions you listed earlier do you want to encourage?

(Consider: Energy shift, energy efficiency, or climate adaptation.)

Tool: Which of the “carrots” or “sticks” will have the best effect?

(Consider: Tax credits, loans, taxes, regulation.)

Put it Together: Explain how the tool you are using will have the effect you want on the action you are choosing.

(Consider: Are you trying to increase or decrease the use or production of something? Will a “carrot” or a “stick” work better here?)

Think Ahead: How would industry or the general public react to this proposal? Can you see any possible problems with how it may work? Describe the effects of your bill and solutions to any challenges you might identify.

(Consider: Would a small business vs a large business have a different impact? How about a rural area vs an urban or suburban area?)

Make Your Case: Imagine you are an elected official, trying to get your climate bill passed. How would you talk about it to different audiences in your constituency?

(Consider: Who needs to buy in to this plan the most? Who is most affected by it?)