Teacher Answer Key

Case Study

1. They chose a nonstop flight, used public transit to get to the airport, and reduced physical gifts in favor of digital or experience-based presents.

2. Elena's calculations led to family-level changes while also highlighting that many similar trips add up in airline planning and climate policy; personal choices exist inside larger systems of routes, fuels, and regulations.

Multiple Choice

1. C

2. D

3. C

Matching

1-D, 2-C, 3-B, 4-E, 5-A

Fill-in-the-Blank

1) contrails, 2) footprint, 3) fuels

Short Answer (Sample Responses)

Q1: Delays can cause extra fuel burn in holding patterns and long taxi/idling times, increasing emissions; rerouting around storms can lengthen flight distance and fuel use.

Q2: System-level examples: wider use of SAF, more efficient aircraft design, improved routing to reduce holds, international agreements on aviation emissions. Individual-level examples: choosing nonstop flights, traveling less often but staying longer, using public transit to airports, or supporting stronger climate policies.

Q3: Contrails and contrail-induced clouds alter how radiation moves in and out of the atmosphere, often causing net warming. This shows that aviation affects climate not only through CO_2 but also by changing cloud cover and heat trapping high in the atmosphere.