Morning Warmup Activity: Research on REST and APIs

Today, we're going to start with a warmup activity focused on understanding REST and APIs. You'll be divided into groups, and each group will select a topic from the list below to research. After your research, each group will give a short presentation (5-10 minutes) to share your findings with the class.

List of Possible Topics:

1. **Introduction to REST**: What is REST, and why is it important? Explain REST principles and constraints.
2. **HTTP Methods in REST**: Describe the different HTTP methods (GET, POST, PUT, DELETE) and their typical uses in RESTful APIs.
3. **Statelessness in REST**: Explain the concept of statelessness in REST and why it is crucial for scalability.
4. **Path Parameters vs. Query Parameters**: Compare and contrast path parameters and query parameters. Provide examples of when to use each.
5. **RESTful API Design Best Practices**: Discuss best practices for designing RESTful APIs, including naming conventions, versioning, and error handling.
6. **Common HTTP Status Codes**: Describe common HTTP status codes used in RESTful APIs (e.g., 200, 201, 400, 404, 500) and what they mean.
7. **API Authentication and Authorization**: Explain the different methods for securing APIs, such as API keys, OAuth, and JWT (JSON Web Tokens).
8. **JSON vs. XML in APIs**: Compare JSON and XML as data formats for APIs. Discuss the pros and cons of each.
9. **Tools for Testing APIs**: Introduce popular tools for testing APIs, such as Postman, Insomnia, and Swagger.
10. **Real-World Examples of RESTful APIs**: Research and present real-world examples of popular RESTful APIs (e.g., GitHub API, Twitter API, Google Maps API).