# PLTW Computer Science A - Lesson Plan

📚 Lesson Title: Introduction to Classes and Objects

📅 Duration: 50-60 Minutes

🎓 Grade Level: 11th-12th Grade (AP CSA)

🌐 Course: PLTW Computer Science A - Unit 2.1

## 🎯 Objectives:

- Distinguish between a class and an object in Java.

- Use constructors to instantiate objects.

- Call instance methods.

- Explain the purpose of the `new` keyword.

## 📄 Standards Alignment:

- AP CSA Framework: MOD-1.A, MOD-2.B, MOD-2.C

- CSTA Level 3A: 3A-AP-13

## 📅 Agenda:

1. Bell Ringer (5 min)  
Prompt: Describe an object in real life and list its attributes and actions.

2. Direct Instruction (15 min)  
- Explain "class" vs. "object" using analogy (e.g., blueprint vs. house).  
- Show constructor syntax and use of `new` keyword.  
- Live demo in IDE using a simple `Student` class.

3. Guided Practice (20 min)  
Students create and manipulate two `Student` objects:

```java  
Student student1 = new Student("Jordan", 12);  
Student student2 = new Student("Taylor", 11);  
  
student1.printInfo();  
student2.printInfo();  
```

4. Exit Ticket / Reflection (5 min)  
Prompt: What was the hardest part of today? Why are objects useful?

## 🌐 Materials:

- Java IDE (Eclipse, IntelliJ, or BlueJ)  
- Sample `Student.java` file  
- Slides or visuals for class/object diagram  
- LMS or notecards for exit ticket

## 📊 Assessment:

- Informal: Observations during practice  
- Formal: Exit ticket reflection  
- Code review: Students demonstrate instantiation and method usage

## 🛠️ Differentiation:

- Beginners: Pair programming, scaffolded starter code  
- Advanced: Add custom methods (e.g., `promoteGrade()`)  
- ELL/SpEd: Visuals, simplified definitions, verbal check-ins

## 🔗 Optional Resources:

- PLTW LMS - Activity 2.1.2  
- Java Quick Reference (AP)  
- Video: Using BlueJ to create objects