Game Development Roles

Unit: Programming

Problem Area: Explore Design and Architecture Concepts

Lesson: Game Development Roles

■ **Student Learning Objectives.** Instruction in this lesson should result in students achieving the following objectives:

1 **List the three stages of game development.**

2 **List the primary career positions and responsibilities associated with each stage of game development.**

■ **Resources.** The following resources may be useful in teaching this lesson:

Hodgson, David S.J., Bryan Stratton, and Alice Rush. *Video Game Careers.* Random House, 2008.

"Jobs/Resumes," *Gamasutra: The Art & Business of Making Games.* Accessed Feb. 6, 2009. <www.gamasutra.com/>.

"Video Game Careers," *HaLife*. Accessed Feb. 5, 2009. <http://halife.com/living/video_game_careers.html>.

■ Equipment, Tools, Supplies, and Facilities.

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials
- ✓ Whiteboard or flipchart

■ Key Terms. The following terms are presented in this lesson (shown in bold italics):

- ► animator
- ► design document
- ► game assets
- ► game designer
- ► game play
- ► producer
- ► programmer
- ► project team
- ► sound designer
- ► tester
- ► writer

■ Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situation. A possible approach is included here.

Divide the class into teams of three. Have each team assign a writer and a timekeeper. Give each team five minutes to brainstorm and list all of the careers they believe would be associated with game development. Each timekeeper should give the team a one-minute warning prior to the completion of the brainstorming. Have teams share their results. Write a combined list of the careers on the whiteboard or flipchart.

Next, have each team make a list of the careers they believe would be associated with making a movie. Again, have each team share responses, and write the list on the whiteboard or flipchart. Compare the lists, and discuss any changes or additions students want to make. The class will likely see a close association between the talents and skills required to make video games and movies. Lead a discussion about the similarities between movies and computer/ video games (e.g., storyline, plot, characters, and music).

SUMMARY OF CONTENT AND TEACHING STRATEGIES

Objective 1: List the three stages of game development.

Anticipated Problem: What are the three stages of game development?

I. Stages of game development

    A. Stage 1: The game must be defined and designed.

        1. Game ideas are generated.

        2. The story script is written.

        3. Functional and non-functional requirements are documented.

    B. Stage 2: The ***game assets***—the components that make up the game—are developed. They are created and integrated during this stage.

        1. Characters are formed.

        2. Environments are developed.

        3. The sound is added.

        4. The game code is written to integrate the assets and to initiate game play.

    C. Stage 3: The game must be tested.

        1. Testers play the game repeatedly, using every possible scenario of play. Testers try to break the game to find bugs and problems so they can be fixed before the game is released.

        2. Problems are documented and reported to the project team, and the team works together to fix the problem.

Use VM–A to emphasize the three stages of game development.

Anticipated Problem: What are the primary career positions and responsibilities associated with each stage of game development?

II. Career positions and responsibilities

    A. Define and design

        1. A ***writer*** is a person who writes the storyline and script for an electronic game. Depending on the specific position, the person may be called a script writer or an editor. At least four aspects of the game should be included in the storyline: the plot, the setting, character development, and the storyboard.

            a. Typically, a ***design document*** (a detailed outline that describes the storyline, the assets needed for the game, game play details such as scoring and game challenges, and how the game is intended to be played) is created during this stage.

            b. ***Game play*** describes every experience that a player may encounter while playing the game.

        2. A ***game designer*** is a person who helps determine if the game, as written in the design document, can be or should be produced. The game designer communicates design and technical concepts to developers throughout the game creation.

            a. The game designer is actively involved in game production throughout all three development stages.

            b. Game designers should have skills in all areas of design and development, including script writing, programming, animation, and project management.

    B. Develop

        1. An ***animator*** (artist) creates characters and character movements (animations) as well as environment assets (all of the artwork that makes up the setting in which the game is played) that will appear in the game.

        2. A ***programmer*** writes the code that causes the interaction between game assets and determines game play.

        3. A ***sound designer*** creates sound effects and music, which add to the game play experience. Just as a movie incorporates sounds and music to add to the movie going experience, game sounds play a large role in the overall game play experience.

        4. A ***producer*** (director) acts as a project manager to be sure that the development team is working together to meet design requirements and deadlines within budget constraints. The producer leads the ***project team***, which consists of all individuals involved in the design, development, testing, and final outcome of the game.

    C. Test—During the test phase, a ***tester*** plays each component of the game repeatedly in an attempt to find problems or to break the game. Testers must

effectively communicate problems to the project team so the problems can be fixed.

Use VM–B, VM–C, VM–D, and VM–E to reinforce the roles involved in video game development. Assign LS–A.

■ **Review/Summary.** Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at the ends of chapters in the textbook may also be used in the review/ summary.

■ **Application.** Use the included visual masters and lab sheet to apply the information presented in the lesson.

■ **Evaluation.** Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

■ **Answers to Sample Test:**

Part One: Matching

1. g
2. e
3. b
4. h
5. d
6. a
7. f
8. c

Part Two: Short Answer

1. The project team is made up of all of the people involved in the creation of the game. This includes writers, programmers, sound designers, animators, testers, game designers, and producers.
2. A design document should include details about the game plot, setting, characters, music and sound effects, and any issues related to game play (e.g., challenges, scoring, and how the game is intended to be played).

Part Three: Completion

1. testers
2. game designers
3. define and design
4. project team
5. define and design

Name _____

Game Development Roles

▶ **Part One: Matching**

Instructions: **Match the term with the correct definition.**

a. programmer
b. game assets
c. writer
d. sound designer

e. design document
f. producer
g. animator
h. game play

_____1. A person who creates characters and adds movement to them

_____2. A detailed outline that describes the storyline, assets needed for the game, and more

_____3. The components that make up the game (e.g., sound, code, and characters)

_____4. The experiences encountered when playing the game

_____5. A person who adds certain effects and music to the game play

_____6. A person who writes code to create the interaction between game assets

_____7. A person who acts as the project manager

_____8. A person who creates the script

▶ **Part Two: Short Answer**

Instructions: **Answer the following.**
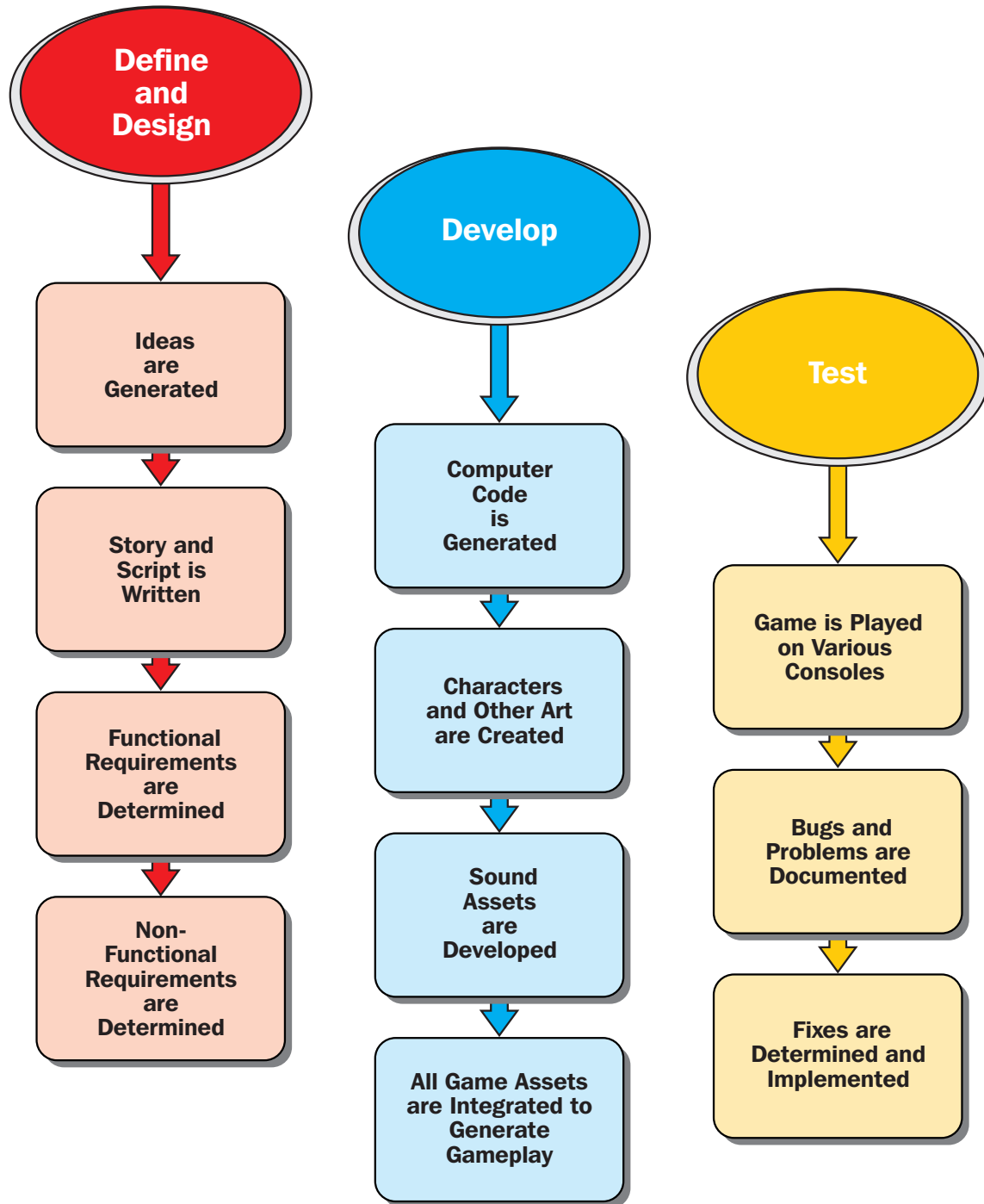
1. Describe what is meant by "project team."

2. List the items described in a design document.

▶ **Part three: Completion**

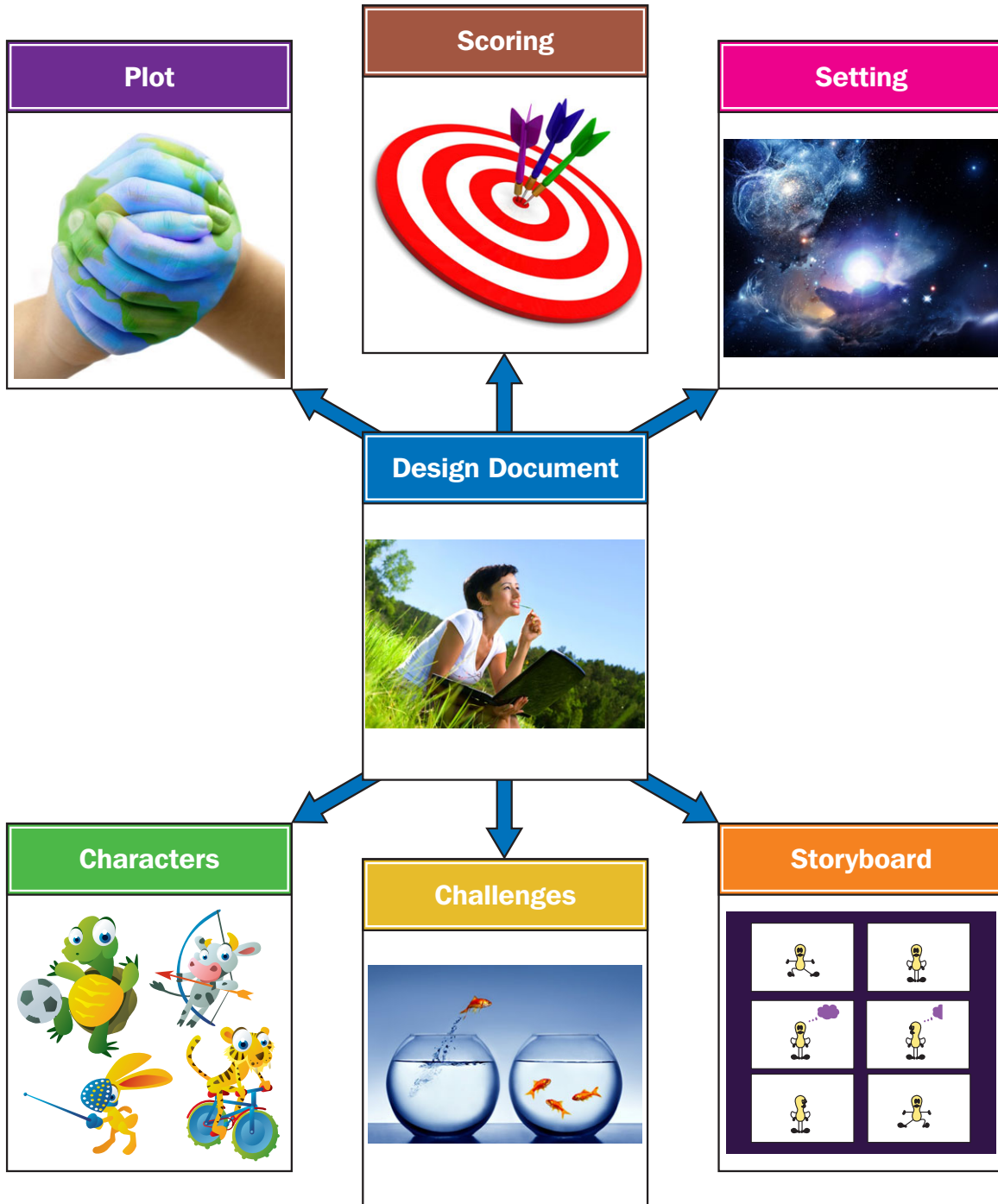*Instructions:* **Provide the word or words to complete the following statements.**

1. The people who play each component of the game repeatedly in an attempt to find problems or break the game are called _____.

2. The people who have skills in all areas of design and development, including script writing, programming, animation, and project management are called _____.

3. Typically, a design document is created during the _____ stage.

4. During the test stage, problems are documented and reported to the _____, and they work together to fix the problem.

5. Functional and non-functional requirements are documented during the _____ stage.

THREE STAGES OF GAME DEVELOPMENT

Define and Design

- Ideas are Generated
- Story and Script is Written
- Functional Requirements are Determined
- Non-Functional Requirements are Determined

Develop

- Computer Code is Generated
- Characters and Other Art are Created
- Sound Assets are Developed
- All Game Assets are Integrated to Generate Gameplay

Test

- Game is Played on Various Consoles
- Bugs and Problems are Documented
- Fixes are Determined and Implemented

COMPONENTS OF A DESIGN DOCUMENT

Plot

Scoring

Setting

Design Document

Characters

Challenges

Storyboard

JOB ROLES DURING THE DEFINE AND DESIGN STAGE

Define and Design

Role	Step
Writer	**Ideas are Generated**
Writer	**Story and Script is Written**
Designer	**Functional Requirements are Determined**
Designer	**Non-Functional Requirements are Determined**
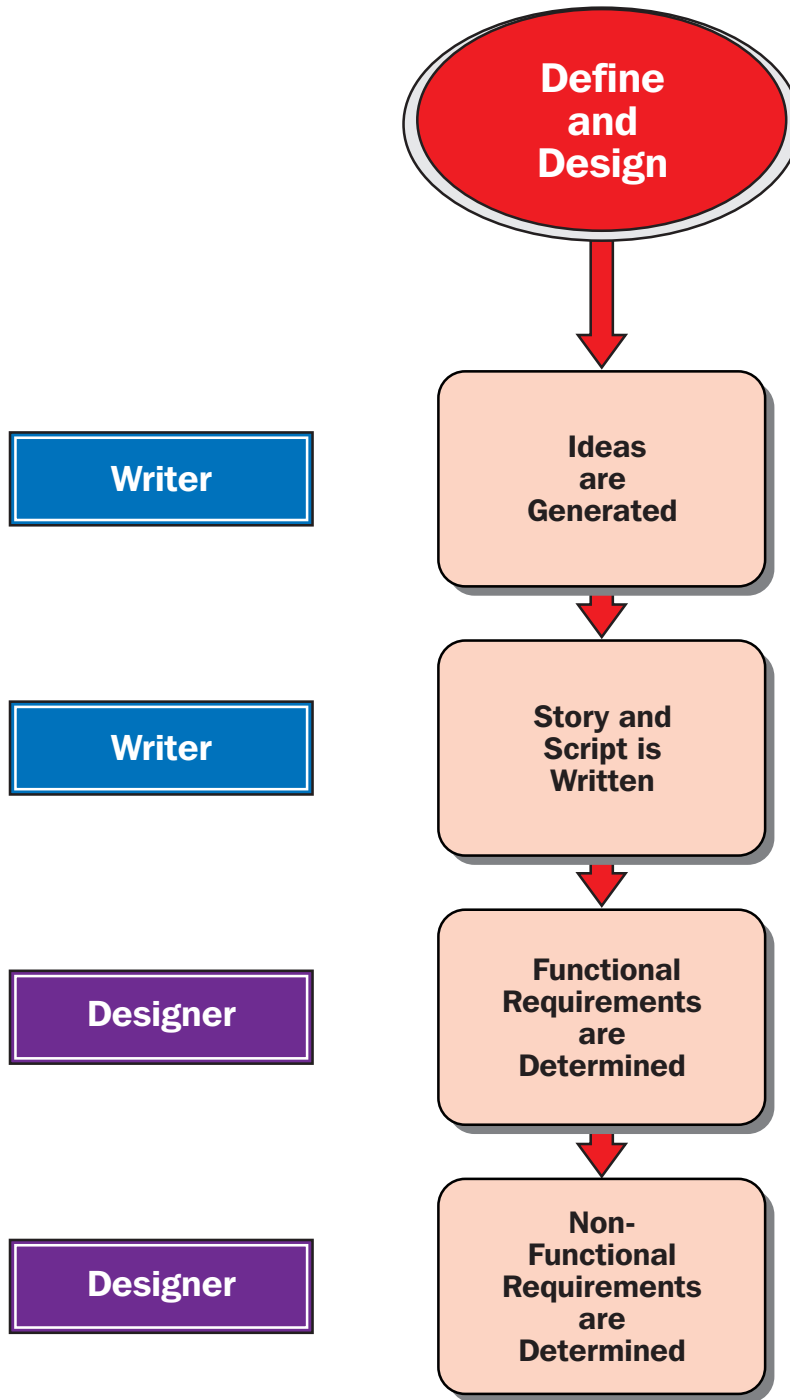
JOB ROLES DURING THE DEVELOP STAGE

Develop

Programmer → Computer Code is Generated

Animator → Characters and Other Art are Created

Sound Designer → Sound Assets are Developed

Programmer and Game Designer → All Game Assets are Integrated to Generate Gameplay
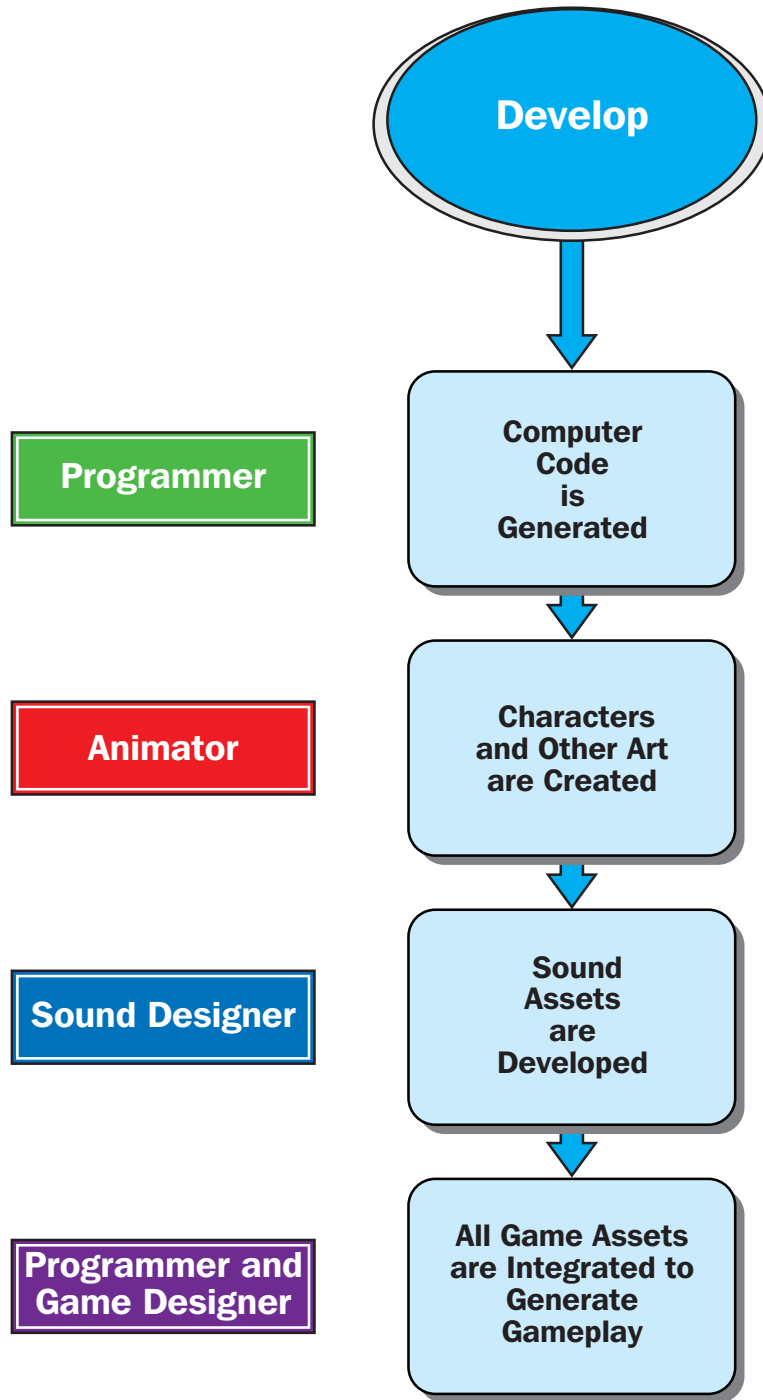
JOB ROLES DURING THE TEST STAGE

Test

Tester → **Game is Played on Various Consoles**

Tester → **Bugs and Problems are Documented**

Project Team → **Fixes are Determined and Implemented**

Name _____
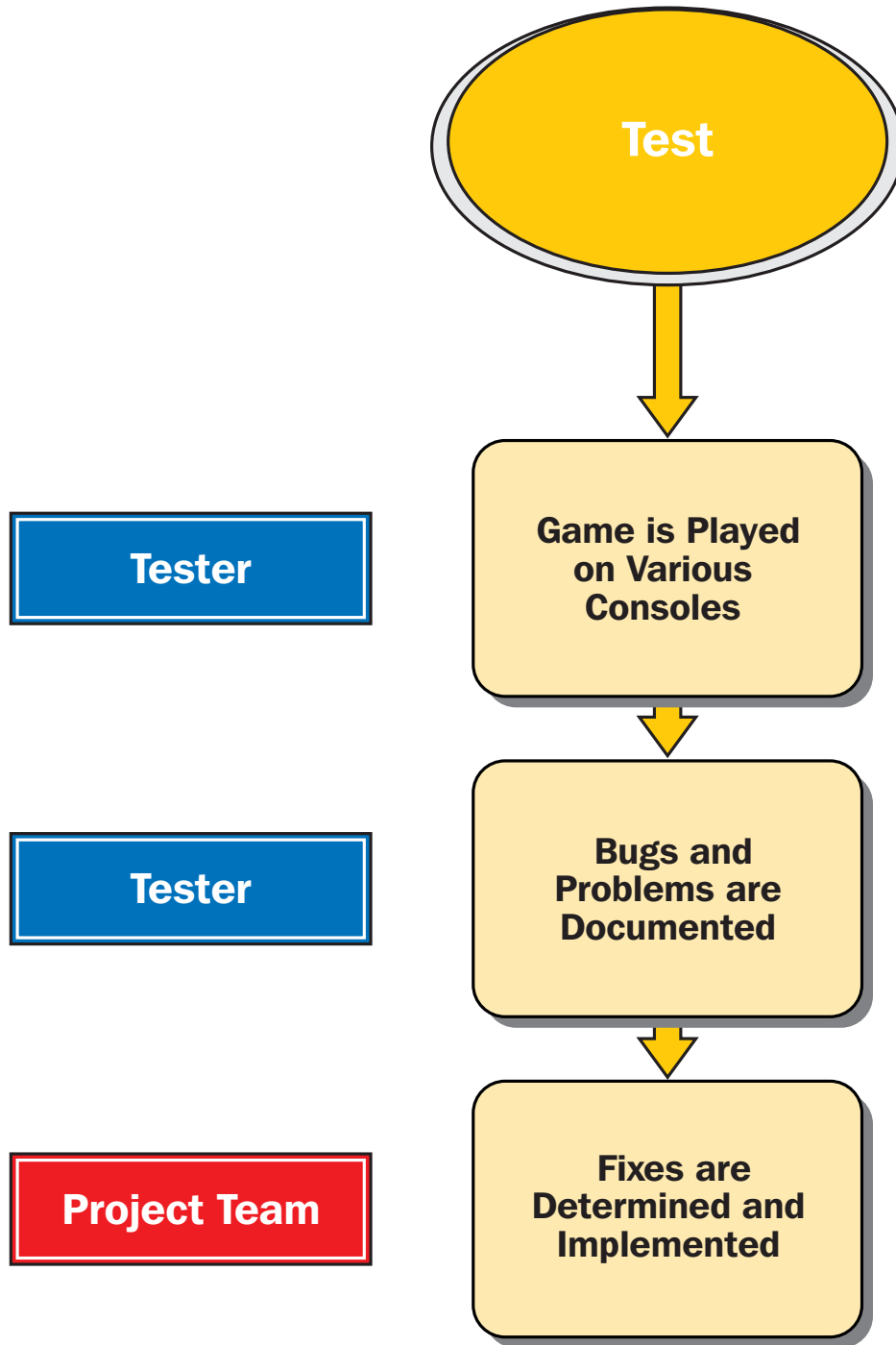
Match Career Positions and Stages of Development

Purpose

The purpose of this activity is to enhance your comprehension of the roles involved in various stages of game development.

Objective

Match job roles to job descriptions and development stages.

Materials

♦ writing utensil

♦ notes, if permitted by instructor

Procedure

1. Place a number and a letter next to each job definition. Chose the number from the "stage" list and the letter from the "career" list.

2. Turn in your completed lab sheet to your instructor.

Stage

1. Define and design

2. Develop

3. Test

Career

A. Producer

B. Writer

C. Tester

D. Game designer

E. Sound designer

F. Animator

G. Project team

_____1. The game is played over and over to try and find problems.

_____2. The script is written.

_____3. It is determined if the game should be produced based on the design document.

_____4. Music and sound effects are created.

_____5. Problems and bugs are analyzed, and fixes are implemented.

_____6. Movement is added to game characters.

_____7. A person who makes sure the development team is working together to meet design requirements and deadlines within budget constraints.

Match Career Positions and Stages of Development

1. 3C
2. 1B
3. 1D
4. 2E
5. 3G
6. 2F
7. 2A