Immersive Gamebox Tech Immersion Week
High School Plan and Worksheets

Immersive Gamebox Tech Immersion Week: High School Plan and Worksheets

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  - Tracking System and Lidar Technology
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Activity Sections

Each section is designed to challenge high school students' understanding of technology and its applications, encouraging them to engage in hands-on activities and critical thinking. These outlines can be expanded into full lesson plans or activities as needed for your educational purposes.

Each activity includes:

- Discussion
- Real World Applications
- Activity
- Critical thinking follow up post IGB visit

The value of R&D

Deep Dive into Platform Development & Research

- Explore the intricacies of platform development, including software engineering, hardware integration, and user experience design. Understand the role of R&D in pushing the boundaries of what technology can achieve.

Extended Activity:

- Students will form groups to design a conceptual technology platform.
- Each group will research and present on one aspect: software development, hardware integration, or user experience design.
- Discuss the importance of continuous R&D in technology advancement.

Real-World Application:

- Analyze a case study of a successful technology platform, focusing on its R&D journey.

Follow up Question from IGB visit:

- Based on your visit, what specific roles and tasks does the Immersive Gamebox tech team perform for the Platform & R&D? Can you list some of the key projects or innovations you remember?

Gamebox System

Gamebox System

- Investigate the architecture of the gamebox system. Understand the hardware components, software integrations, and network infrastructure that enable the sophisticated gaming experiences.

Project-Based Learning:

- Design a detailed layout of an ideal gamebox system.
- Include specifications like processor speed, memory, and network capabilities.
- Discuss the balance between hardware performance and software efficiency.

Discussion:

- Debate the future of gaming technology and the role of cloud computing in gaming.

Follow up question post IGB visit:

- Reflecting on your visit, what are the main functions and features of the Gamebox? What unique aspects of these systems stood out to you?

Tracking System and Lidar Technology

In-Depth Exploration of Tracking and Lidar

- Examine the principles behind tracking systems and Lidar. Understand how these technologies capture and interpret physical data to interact with digital environments.

Experiment and Analysis:

- Create a basic Lidar model using everyday materials.
- Conduct a small experiment to track movements and interpret the data.
- Analyze how Lidar data can be used in various applications.

Real-Life Application:

- Explore the use of Lidar in environmental studies and autonomous vehicles through case studies.

Follow up Question post IGB visit:

From your experience at the venue, how does Immersive Gamebox utilize Tracking Systems and Lidar Technology? What specific applications or examples did you observe or learn about during the presentation?

PCC Cameras and Wearables

Technological Evolution of Imaging and Wearables

- Delve deep into the technology behind PCC cameras, exploring optical engineering and image processing. Investigate the growing field of wearable technology and its potential impacts.

Design and Innovation Activity:

- Students design a concept for an innovative wearable device.
- Focus on the integration of sensors, data processing, and user interface.
- Present a potential market and user case scenario for their design.

Discussion:

- The ethical implications and future potential of wearable technology.

Follow up question post IGB visit:

Thinking back to your visit to the venue, what did you learn about the use of PCC Cameras and Wearable Technology at Immersive Gamebox? Can you recall any specific types of wearables or camera functionalities highlighted during the presentation?

Build and Logistics

Complexities in Tech Building & Logistics

- Understand the challenges in building and deploying technology systems, from manufacturing to logistics and supply chain management.

Comprehensive Project:

- Plan a mock product launch, including manufacturing, logistics, and market deployment.
- Analyze real-world case studies of tech product launches, focusing on challenges and solutions.

Real-World Insight:

- Discuss the global impact of technology manufacturing and logistics.

Follow up question post IGB visit:

After experiencing the venue, what insights did you gain about the Build and Logistics process at Immersive Gamebox? What are some of the key steps or challenges in this process as presented in the presentation?

Software Development

Exploring the Nuances of Software Deployment

- Understand the complexities of deploying software on a large scale, including infrastructure management, version control, and user feedback integration.

Research and Case Study Analysis:

- Investigate a major software deployment, analyzing its strategy, challenges, and outcomes.
- Present findings and discuss lessons learned from the case study.

Discussion:

- The importance of scalability and security in software deployment.

Follow up question post IGB visit:

- From your visit to Immersive Gamebox, how is Software Deployment managed by the tech team? What are some of the crucial aspects of software deployment you learned about from the presentation?

Post-Visit Test

Part 1: Understanding Key Concepts

1. Describe the main components of a Gamebox System and their functions.
    a. (Open-ended question for detailed answer)
2. Explain how Lidar technology works and its application in modern technology.
    a. (Open-ended question for detailed answer)
3. Discuss the importance of R&D in the development of immersive gaming experiences. Provide examples.
    a. (Open-ended question for detailed answer)
4. What are the key considerations in the Build and Logistics process for technology deployment?
    a. (Multiple choice or short answer)

Part 2: Reflecting on the Venue Visit

5. Describe a technology or process you observed during your visit to Immersive Gamebox that interested you the most. Why did it stand out?
    a. (Open-ended question for detailed answer)
6. During the visit, how did you see the concepts of R&D and Testing being applied in a real-world setting? Provide specific examples.
    a. (Open-ended question for detailed answer)
7. Recall a specific instance from the venue visit where the importance of software deployment was evident. Describe the instance and its significance.
    a. (Open-ended question for detailed answer)

Part 3: Application and Analysis (After Visit)

8. Based on what you learned and observed, how do you think the technologies like PCC Cameras and Wearables can evolve in the next 5 years?
    a. (Open-ended question for detailed answer)
9. Analyze the role of Tracking Systems in enhancing the gaming experience at Immersive Gamebox. Use specific examples from your visit and gameplay.
    a. (Open-ended question for detailed answer)
10. Considering the entire experience, from the curriculum to the visit and gameplay, how do you think technology like that at Immersive Gamebox can influence future educational or entertainment experiences?
    a. (Open-ended question for detailed answer)

Hardware Glossary Worksheet

Gamebox

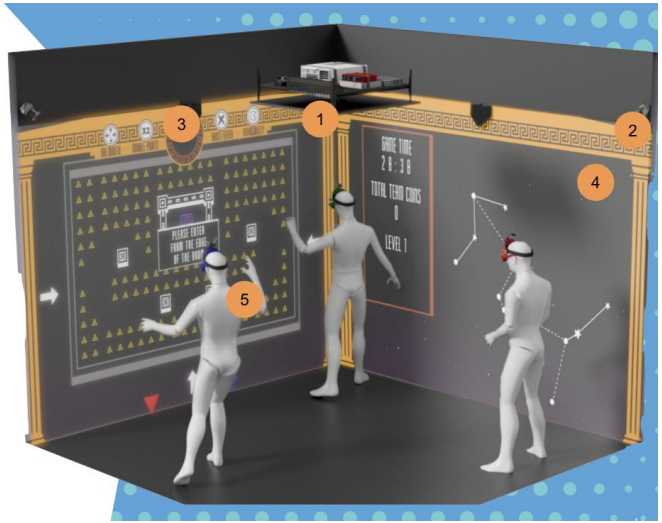
Game Shelf		Contains all the gamebox servers needed to run the games. There are data and power connectors at the front which connects the rest of the external equipment inside the gamebox
Tracking Cameras		4x Vicon tracking cameras in each corner of the room. They have LEDs which flash according to their status. The cameras track the hats inside the room and feed the data to the games
Touch Lidars		3x Lidars in the upper middle part of the projected walls. They spin when they are active and provide the touch wall in the games
PCC Camera		Located in the middle of the back wall. The camera turns on and grabs a gif at the end of the game.
Audio Speakers		4x speakers in each corner of the room. They are powered by an amp that sits on the game shelf

Projectors		4x projectors that hang from above, surrounding the game shelf.

Rack System

Synology NAS Drive		Storage for CCTV cameras It has a series of LEDs that indicate status by blinking. A single power button in the middle next to the Synology logo
Supermicro		A Virtual Machine server, running the venue Control System, VenueOS (Portal) and compositor (PCC).
Central Switch		All network connections are fed into the central switch, you will see a lot of short patch cables plugged into it.
Central NUC		Small square computer which is used to remote into a venue by the tech team, this would be connected to a screen that sits on top of the Rack
Server Rack		A metal storage box containing of the central machines mentioned above

Fill in the blank Test



3. Leaderboards / check-in desks