



SAMSUNG MOBILE APPS BOOT CAMP CLASSROOM LESSON PLANS AND COMMON CORE STANDARDS

To download all classroom materials, go to the **Teacher Resources** tab in the Samsung Mobile Apps Boot Camp microsite: www.scholastic.com/samsungbootcamp.

CLASSROOM LESSON PLANS OVERVIEW

Objectives

The overall objective of the Samsung Scholastic Mobile Apps Boot Camp Lesson Plans is to provide a resource in teaching your high school students the basics of mobile application development, a technology that currently dominates the new media market and the mobile industry.

The lessons by and large spotlight five key steps—the 5D Process—in mobile app creation: Discover, Define, Design, Develop and Deploy. The lesson plans are intended to provide a guide for the process that takes place before, during and after apps are released into the marketplace, as well as familiarize students with the associated terminology. The activities have been designed as a way to give students the opportunity to get their creative juices flowing and to fully think through the practical process that developers use when conceptualizing and creating mobile apps.

Breakdown of Classroom Lessons (Time Allotment)

The Lesson Plans are designed to accommodate class schedules and curriculum integration. Lessons can be broken into segments/units and span across multiple days or weeks. Lessons can also be presented as two parts: lecture/discussion and student activities.

Classroom Resource Materials

All materials utilized in these lesson plans are available for download in the **Teacher Resources** tab at: www.scholastic.com/samsungbootcamp.

Classroom Lesson Plans and Common Core Standards

Designed to complement the Classroom Presentation Guide, the Lesson Plans are a resource in teaching high school students the basics of mobile application development and guidance in the marketplace release process. The Lesson Plans, complete with terminology, are designed to accommodate class schedules and curriculum integration, and can be broken into segments or units to span across multiple days. Common Core Standards are provided below.

Classroom Presentation Guide

This presentation will guide you in providing students with a complete overview of the app development process. Designed for use with the Classroom Lesson Plans, the Presentation also includes teacher notes and additional background information.

The Supporting Materials for Students

The following supporting student materials are referenced in the Classroom Presentation Guide and are also available for download in the Teacher Resources tab at:

www.scholastic.com/samsungbootcamp.



Creative Brief Sample

Used to define the student's project, this sample Creative Brief illustrates how the audience, tone, features, and special aspects are communicated. The sample will help guide students into thinking and imagining for themselves.

Creative Brief Template

Provide this document to students for completion of their own Creative Brief, a critical early step in their app development process.

Functional Specifications Document (FSD) Sample

A road map of the workings of the app, the Functional Specifications Document (FSD) sample provides a useful example in this phase of the app development process.

Functional Specifications Document (FSD) Template

Utilize this FSD template as an example for students to illustrate and clearly outline vision and technical documentation for their app.

Concept Submission Form Sample

Once you have gone through all of the app development steps, the process culminates with students completing their own mobile apps submission. Use this sample to illustrate the process.

Concept Submission Form Template

Have students complete a mobile app Concept Submission as a culmination of the project and as their final project "deployment" document. Final Concept Submissions can be turned in for teacher review, and/or presented as a final group presentation.



Common Core Standards

To assist in your planning and curriculum integration, the Common Core Standards utilized in this program are provided.

**Common Core State Standards: Technical Subjects'
(Grades 9–12)**

STANDARDS	BENCHMARK/COMPETENCY/EXPECTATION
Key Ideas and Details	
Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
Craft and Structure	
Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
Integration of Knowledge and Ideas	
Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
Text Type and Purposes	
Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
Production and Distribution of Writing	
Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

*Source: Common Core State Standards Initiative, http://www.corestandards.org/assets/CCSSI_ELA%20Standards.pdf



THE 5D PROCESS

The 5D Process is integral to the app development process, to the structure of these materials and to the presentation. The 5D Process helps you direct students in a logical order so they can develop their own concepts. The 5D Process includes:

Discover—Learn everything you can

- The market
- The competitors
- Who will be using the app?
- Access to resources and staff

Define—Plan out your idea

- Think through a Functional Specification Document and wireframes
- Plan your timing
- Plan for hiccups

Design—Get a rough sketch/concept

- Create the primary screens
- Test it with friends, family, others

Develop—Use your creativity and have the code built to the plan

- Make the creative designs functional
- Integrate these into the app build
- Test your build to make sure it works

Deploy—Release a tested version

- Monitor what people are saying
- See what works, what breaks and what could be improved
- Build the next version

KEY DEFINITIONS

To further ensure that you have all the tools you need for integrating these lessons into your classroom, Key Definitions used in the materials are below for your reference.

Advertising (Paid Media)

This form of marketing is used to create exposure for your application and is paid or purchased advertising or promotion. It can take place through various mediums (television, print, Internet, etc.).

Augmented Reality (AR)

Takes real-world environments or views and augments those elements through computer-generated input.

Bug

Bugs, typically uncovered during app testing, are technical or usability problems.

Button

Allows a user to perform a certain, specific action. Examples are tapping a button to travel to a different screen, or tapping a submit button to send information through the app.



Creative Brief

A document used by creative professionals and agencies to develop a creative broad concept and a time line for application development. The creative brief also allows for internal approval and is required before work can commence.

Competitor

Competitors in the market are those who have applications that have similar concepts, functionality and capabilities. As an example, competitors to the social-media platform Facebook include Twitter, Tumblr and LinkedIn.

Exposure

Part of the marketing strategy, the number of people who have seen or been affected by the product release and its marketing/promotional plan.

Functional Specifications Document (FSD)

This document outlines the desired behavior, user experience and interface of an application. Includes the wireframes, and the actions that each screen will have.

Home Screen

This is the first screen that appears when the app has loaded. The screen can be a login screen or an overview of the app contents such as navigation, buttons and icons.

Icon

Often, the symbol on which users click. Represents information and action and helps users understand an app, and what can be accomplished within it.

Language/Code

The language/code is how the developers program the app. There are multiple options, all of which allow for different functions and experiences.

Market

For the purposes of this program, the term refers to the app market, and where apps enter and exist for consumers to download and use.

Marketing/Marketing Plan

Marketing and a marketing plan define the target audience, how or where promotion will take place, in what time period and the action items required to initiate the promotion. The goal is to let potential users know the app exists, and then to get them to download.

Metrics

Developers set up metrics to collect data on various aspects of app usage. This information allows them to analyze the app to evaluate where the app is successful, and how the app can be improved in future updates.

Mobile Application

A mobile application or app is software that runs on a mobile device such as a smartphone, and other mobile devices, and allows the device to perform specific tasks that are typically restrictive on computers.



Navigation

How a user travels through the app. This usually remains in a fixed spot within the user interface as buttons, and allows users to tap and go from screen to screen.

Primary Navigation: drives access to the app's core features.

Secondary Navigation: additional navigation points.

Near Field Communications (NFC)

A technology that allows devices to "talk" to each other when the two devices are touching or in close proximity to each other.

Object Recognition (OR)

Isolating elements of an image and overlay imagery or video, 3D objects, etc., and allows finding an object in an image.

Platform

An application can be released on various platforms, such as an Android platform, ice cream sandwich, Blackberry, Windows and iOS. The more platforms an app is released on, the more exposure and potential downloads an app will have.

Public Relations (Earned Media)

Publicity that has been generated through promotional planning and endeavors and are not advertising. Reviews, blogs, and mentions in a variety of media are examples.

Quality Assurance (QA)

A system used throughout the development and deployment process to ensure that the app is meeting the specified requirements.

Quick Response (QR) Code

A matrix bar code used through smartphones, it can serve many purposes including a way to drive potential users and can be added to promotional materials.

Reach

Part of a marketing strategy, the potential customers it's possible to reach through marketing, promotion and/or product release.

Splash Screen

The image that appears as the app is loading.

Target Audience

A group of people in a desired market that a product or message is targeted toward.

Testing (Alpha and Beta)

Alpha testing is the initial testing done by the team to ensure the app is running without major bugs or issues. Once Alpha testing is complete, the testing moves to **Beta**, which is also known as "prerelease testing." Beta testing is done by a sample group of the intended audience that uses the product, and then provides feedback on its interaction and experience.

User Acceptance Testing (UAT)

Typically happens late in the app development process, **user acceptance testing (UAT)** is tested for functionality.



User Experience (UX)

The way a user interacts with the app, how he or she feels about the app, how easy it is to use the app and how the app runs and functions.

User Interface (UI)

How a user interacts with the visual experience of an app, which permits the user to navigate and use the application.

Wireframes

A visual tool, wireframes illustrate the functions, experience and interface of the app. They create a visual to help understand what the app will look like and how it will function.



SAMSUNG MOBILE APPS BOOT CAMP CLASSROOM LESSON PLANS

ALL LESSON PLANS

Materials: The **Key Definitions** and **5D Process** listings are located in this Classroom Lesson Plans document. Download all other materials by going to the Samsung Mobile Apps Boot Camp microsite located in the Teacher Resources tab at: www.scholastic.com/samsungbootcamp.

Timing: To accommodate class schedules, the Estimated Time Required in the lessons is designed to accommodate class schedules and curriculum integration. Lessons can be broken into segments/units and span across multiple days or weeks. Lessons can also be presented as two parts: lecture/discussion and student activities.

TEACHER LESSON PLAN 1 Creating an Awesome App

Objectives: To provide an overview of the lessons, the contextual framework of mobile apps in today's world and to begin to define apps and usage categories.

Specific Materials: Classroom Presentation Guide (**Slides 3–26** and the Teacher/Presenter Notes inserted in the slides)

Estimated Time Required: 1.5 hours (lessons can be broken into segments that span multiple days)

Lesson—Getting Started:

- Provide students with the goals of the lessons: 1) To learn about the multiple stages of mobile app development; and 2) To have students develop their own mobile app “big idea” concepts that could be the next big thing. **[Slide 2]**
- Introduce students to technology history and the current mobile app usage stats to provide context to mobile app development and how technology has affected and is affecting the world.
- Review some of the Samsung and other mobile device products available in today's market, and some of the recent innovative features of these products. **[Slide 3]**
- Introduce technology in historical context and help the students to observe how quickly technological changes are taking place in context to the past. **[Slide 4]**
- Tablet usage and the related behaviors have resulted in extensive changes. **[Slides 5–10]**

Student Activity 1 **[Slide 11]:**

- Separate students into small teams of three to four and have them name their team. The teams will work together throughout the app development process.
- Write the Discussion Topics below on a smartboard, whiteboard or flip chart. Have each group meet to discuss the topics and draft their ideas and predictions.
 - **Discussion Topics:** How is mobile technology changing our behavior? What new behaviors are arising? How does your family use technology in your home, and to what effect? Related to technology, what are the major differences in family life from when your grandparents grew up? What are some predictions for how technology will change our world and behaviors in five years? In 10 years? In 25 years?



- Have each group present their thoughts and ideas to the entire class. Encourage each student to take part in the team's presentation.
- As each team presents, write the ideas on the smartboard, whiteboard or flip chart. Themes and overarching ideas will probably emerge. Circle those major concepts and set aside for discussion at the end of the process.

Lesson— Apps: The Market, Technologies and Careers:

- **Discussion Topic:** Ask the students for definitions of an app. Make the point that there are many kinds of apps and ways to interact with those various apps. **[Slide 12]**
- To ensure students have information to feed into their team's app concept, introduce new mobile technologies including M-Commerce, Near Field Communications (NFC), Augmented Reality (AR), QR Codes, and Object Recognition. **[Slides 13–18]**
- **Discussion Topic:** With the world of mobile apps growing and changing so rapidly, what are some related career possibilities? Ask students to predict what kind of careers could be available in the future. **[Slide 19]**

Lesson— App Showcase:

- **Discussion Topic:** Use the questions on **[Slide 20]** to encourage students to think about what apps they like, why they like them and how they get information on new apps. Write the answers on a smartboard, whiteboard or flip chart. Save to go back and discuss again at the conclusion of the program.
- **Discussion Topics:** Review the various types of apps and categories. Have the students keep in mind these questions: 1) Why are these apps the best? 2) What do they offer a user? 3) What makes an app enjoyable to use? 4) What are the cool features? 5) What is the interactivity? 6) What apps are the best overall and why do you feel they stand out? **[Slides 21–26]**

TEACHER LESSON PLAN 2

The 5Ds: Discover, Define, Design

Objectives: To help students understand the beginning of the app development process and to translate this understanding into action by completing a Creative Brief, the importance of a well-thought-out design, and the value of the Functional Specifications Document (FSD).

Specific Materials: Classroom Presentation Guide (**Slides 27–54** and the Teacher/Presenter Notes inserted in the slides), Creative Brief Sample, Creative Brief Template, Functional Specifications Sample and Functional Specifications Template

Total Estimated Time Required: 3 hours (lessons can be broken into segments that span multiple days)

The 5Ds **[Slide 27]**

- Introduce students to the concept that getting an app into the marketplace is a well-planned process with specific steps that takes time and effort. The best apps are on a mission! Developers have done their research. They've mastered how the app works for a specific target audience and studied the market, their competitors, and know inside and out why their app is better.
- The process starts with an idea and goes through each of the 5Ds. Following this process can be a recipe for success!



The 5Ds: Discover, Define, Design

Lesson—The Big Idea and Creative Brief

- Both the **Discover** (researching the market, competitors, target audience, the app's capabilities and why it's relevant), and the **Define** (planning and scheduling the time line, and developing the Creative Brief) are very important stages of the process.
- Getting an app ready for a market release means researching and comparing the app's competition, and why or why not an idea is a good one. Learn everything you can! **[Slides 28–30]**
- **Discussion Topic:** Choose a popular app (Twitter, Angry Birds) and talk about why the app is popular, the market, who its competitors are and the target audience. Reinforce that before an app can be released, these initial stages are crucial and that collaboration is an important part of any technical, creative and business project.
- The best way to start any application project is to develop a Creative Brief that outlines the Who, What, When, Why and How of an app idea! To start that process, think about the vision for the final product, then work backward to accomplish it. **[Slide 31]**
- **Discussion Topic:** Think about the resources needed: time, people and money. The best way to start any application project is to develop a Creative Brief that outlines the Who, What, When, Why and How of an app idea! To start that process, think about the vision for the final product, then work backwards to accomplish. **[Slides 32–36]**

Student Activity 2—The Big Idea and Creative Brief [Slide 37]

- **Discussion Topic:** Why is it important to do research before jumping right into design and development stages? How will that affect the idea you come up with?
- Now that students have reviewed some of the best apps available and have discussed the reasons for that popularity, provide each team with a **Creative Brief Sample** and a **Creative Brief Template**. Point out how the Sample helps to further define the idea.
- Then set aside time for each team to brainstorm ideas for its own app concept.
- Each team will fill out a Creative Brief Template based on what they feel is their best app concept—their team's big idea! If possible, provide each team with space in front of a smartboard, whiteboard or flip chart so they can sketch out the idea.
- Once the teams have drafted their Creative Brief, and possibly a sketch, have each group present their concept to the class. Encourage each student on the team to take part in the presentation.
- Have the class ask questions, probe deeper—and give compliments! Getting to see how another group thinks is a great way to gain more information, and to learn to think more broadly.

Lesson—The Road Map (Functional Specifications)

- Upon completion of the Creative Brief and presentations, provide each group with a **Functional Specifications Document (FSD) Sample** and an **FSD Template** to review.
- Discuss how students will define their plan. **[Slide 38–39]**
- Using the FSD Sample, point out how the UI, designs and navigation are kept simple and clean, and have an easy logic.
- **Discussion Topic:** In order to create an app that is effortless to use, a lot of thought needs to be put into how a user will navigate from screen to screen. An app should take users on a seamless journey that doesn't lead to a confusing or hindered experience (user experience and journey). **[Slides 40–41]**



- **Discussion Topic:** Before apps can be developed and ready for users to enjoy, the road map of how the app works must be created. Creating an FSD allows students to map out how users will navigate through an app, but it also ensures that the entire team is on the same page. **[Slide 42]**
- **Discussion Topics:** Why are apps such as Facebook, Instagram, and Pandora effective? How do users navigate through these apps? What do they all have in common? (i.e., App Icon, Splash Screen, Home Screen, Navigation: Primary and Secondary, Buttons, Icons, and Gestures) Reinforce that great apps have a simple logic, allowing users to view and share content in an easy way. Talk about the flow of information, and how the wireframes (use the FSD Sample) replicate the actual use process.

Lesson—Design [Slides 43–53]

- Make the point to the students that creating a foolproof FSD will allow an easy transition from Discovery and Define to Design, Development and Deployment.
- A critical component is the design. Impress upon the students that the more well-thought-out their concept and the initial designs, the more opportunity for success. Have students experiment with rough sketches and take their ideas and sketches home to ask their families for input.
- Within the design, students must think about all aspects of the app, and the design should reflect this.

Student Activity 3—Functional Specifications Document (FSD) [Slide 54]

- Using their “big idea” from the Creative Brief, it’s time for students to think like a developer and to fill out the group FSD. This activity can be assigned as an in-class or homework project.
- Review each group’s completed FSD and discuss potential challenges, pitfalls and possible revisions. Have students fully evaluate if the FSD communicates and accomplishes their goals for their idea. Revisions should be made to the document as decided upon by the group. Look to make sure that the app is simple in design and logic. Anything that stops the user journey from running smoothly should be reworked for a good user experience.
- Have each group present its completed FSD. Encourage each student on the team to take part in the presentation.
- If possible, have each document projected so the other students can easily observe each section and specification.
- Allow the rest of the class to ask questions and provide positive feedback.

TEACHER LESSON PLAN 3

The 5Ds: Develop, Deploy

Objective: To understand the language or code for the app to be developed for the testing phase (alpha and beta) and how to release the app to the public via various platforms (deployment). To understand that a successful app follows a creative marketing plan created to obtain maximum reach and exposure.

Specific Materials: Classroom Presentation Guide (**Slides 55–65** and the Teacher/Presenter Notes inserted in the slides, Concept Submission Sample, and Concept Submission Template

Total Estimated Time Required: 2.5 hours (lessons can be broken into segments that span multiple days)



Lesson—Getting Your App Ready

- Explain the basic process of transforming designs and wireframes into a language or code that is used in app development. **[Slide 55]**
- **Discussion Topic:** Discuss the various platforms through which an app can be released (Android, Windows, iOS, etc.). **[Slide 56]**
- For an app to be ready for release, development must code the app using one or a combination of many development languages. **[Slide 57]**
- Once they've coded the app, testing begins to find and fix any bugs that the app might have. Once alpha and beta testing is complete, the app is ready to be released to users everywhere! **[Slide 58]**
- **Discussion Topic:** Why is it important for app developers to test their apps before releasing them? Explain that before an app is released, it's important that you've tested your app for any bugs. Reviews travel fast and apps that don't run smoothly from the start won't last. Guide the discussion, mentioning that the development stage includes a testing process. Explain alpha testing (which is done internally) and beta testing (prerelease testing, done by a sample set of users). Reinforce that apps require many changes before they are ready to be released and used by the public. In most cases, developers move into creating a second version that will incorporate updates and bug fixes.
- **Discussion Topic:** How are metrics relevant to app development and deployment? Reference the idea of report cards, and explain that the feedback received via metrics is similar in that it accumulates data based on performance. The data is then analyzed and provided to developers so that they can look out for possible changes. **[Slides 59–60]**

Lesson—Promoting [Slides 61–63]

- **Discussion Topic:** What are ways an app can be promoted? Start by pointing out free promotion avenues (social media and PR), paid avenues (advertising) and websites that drive users to respective app stores to download. Whether it's a paid advertisement on billboards, in subways, on TV or free word of mouth through social media like Facebook and Twitter, getting a new app to the target audience is crucial.
- **Discussion Topic:** Is there only one avenue in which an app should be promoted, or should the promotion be completed through various mediums? Discuss the importance of trying to "break through." Reinforce that more exposure across all mediums makes it more likely that an app will be successful. Get noticed by app stores and be in their "New & Noteworthy" category, and also pitch apps to review websites and bloggers—free ways to gain the market advantage.
- **Discussion Topic:** Lead a class review and discussion about the advantages of a marketing plan, assist the students in coming to conclusions regarding the content within the plan and reinforce the importance of creating a versatile plan that focuses on exposure throughout various mediums to reach the target audience.

Student Activity 4: Concept Submission [Slide 64]

- Have students return to their groups and provide them with a Concept Submission Sample. Lead the students through the document.
- **Discussion Topic:** Review the entire process up to this point, and the importance of each of the five stages in getting to this point. Have students provide their opinions on the different stages, what they have learned from the process and how their concepts have transformed as a result. **[Slide 65]**
- Have each group complete the Concept Submission Template assigned as a homework project. Provide plenty of time for completion.
- Final Concept Submissions can be turned in for teacher review, and can be presented as a final group presentation.
- For the final grade, each group should turn in the final FSD and the Concept Submission.
- **BONUS:** Students could include a full-blown marketing plan as part of their final submission. The marketing plan should map out how, where and when the app promotion will take place. The plan should include multiple channels (social media, advertising, websites, YouTube, etc.). The goal of the marketing plan should be to create maximum exposure, thus maximum app downloads.