Prompt Used: “Using the completed DCO and the [blank storyboard template], fill out each row to create an e-learning storyboard. Use the ‘Proposed Treatment’ from the DCO as the ‘Screen Type.’ For each screen, provide the screen number, on-screen text, voice-over script, screen treatment, visual design ideas, and developer notes.”

Create on-screen text (OST) and voice-over (VO) scripts directly from the provided source content. Use the source wording exactly. You may add minimal introductory or bridge words for flow and clarity, but do not change, paraphrase, or editorialize the source content. The VO script should reflect the OST and the original material. Ensure terminology, tone, and intent remain unchanged.

**Guidelines for OST:**

Direct Extraction: Pull sentences, phrases, or bullet points verbatim from the source content.

Condensation if Needed: If the source text is long, you may shorten it for readability on screen, but do not change the meaning or omit key points.

Bullet Points: Use bullet points for lists (e.g., learning objectives, steps, key takeaways).

Clarity: Ensure each OST item is clear, concise, and immediately understandable by the target audience.

No Tweaking: Do not paraphrase, rephrase, or editorialize. The words, tone, and intent must match the source material.

Filler Allowed: Add minimal introductory words (e.g., “Let’s look at…”, “Here is…”) only if needed for coherence or flow.

Formatting: Use sentence case or title case as per your style guide, but do not alter the text itself.

**Guidelines for Voice-Over (VO) Scripts:**

For creating voice over, maintain a professional, conversational tone and clearly define any jargon. Use active voice, short sentences, and first/second-person pronouns. The voice-over script must be [word length] and cite two places where supportive on-screen text or images could be added.

Filler/Bridge Words: Only add words that improve delivery without altering content (e.g., “Let’s begin with…”, “As you can see…”).

No Substantive Changes: Do not summarize, expand, or interpret the source content. The VO script must reflect the OST and the source material.

Conversational Tone: If the OST is a bullet point, convert it to a complete spoken sentence, but keep the meaning unchanged.

# Storyboard – The Drug Discovery Process

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| --- | --- | --- | --- | --- | --- |
| Screen # | Screen Type | On-Screen Text (OST) | Voice-Over (VO) Script | Visual Design Ideas | Developer Notes |
| 1 | Image and Text | The Drug Discovery Process: What Is It and Its Major Steps Duration: 5–7 minutes Click Start to Begin | Welcome to this course on the Drug Discovery Process: what it is and its major steps. This module will take about five to seven minutes. Select the Start button to begin. | Static launch screen with course logo, healthcare imagery, and Start button. | Non-interactive. Add fade-in animation for title and Start button. |
| 2 | Video | How to Navigate This Course Use Next, Back, Menu, Resources | Here’s how to navigate this course. Use the Next and Back buttons to move through the content, the Menu to access topics, and the Resources tab for supporting materials. | Highlight navigation buttons with animated callouts while narration explains. | Short instructional video. Ensure audio is synced with button highlights. |
| 3 | Image and Text | Course Overview In this module you’ll learn: • What Drug Discovery is • The four major stages • Early, Pre-Clinical, Clinical, and Regulatory Phases • The benefits of Zebrafish | In this module, you’ll learn what drug discovery is, the four major stages, how the early, pre-clinical, clinical, and regulatory phases work, and the benefits of zebrafish. | Infographic-style icons: microscope, test tubes, clinical group, approval stamp, zebrafish. | Static slide. Add smooth reveal for each bullet. |
| 4 | Image and Text | Learning Objectives By the end of this course, you will be able to: • Define the drug discovery process • Identify the four major stages • Recognize ethical considerations and alternatives • Describe the importance of regulatory approval | By the end of this course, you will be able to define the drug discovery process, identify the four major stages, recognize ethical considerations and alternatives, and describe the importance of regulatory approval. | Clean text layout with icons (target, timeline, ethics, approval). | Static. Each bullet appears one by one. |
| 5 | Click-to-Reveal | What is Drug Discovery? • The process can take up to 13 years. • Only 1 out of every 5,000–10,000 drugs make it to market approval. • Estimated cost: $2.6–3 billion per drug. • Importance of reducing animal testing. | The drug discovery process can take up to 13 years. Only one out of every five to ten thousand compounds makes it to market approval. The estimated cost per drug is between two point six and three billion dollars. Reducing animal testing is an important goal. | Click-to-reveal blocks for Time, Cost, Success Rate, Ethics. Icons: clock, dollar, molecule, ethics scale. | Interactive. Each item reveals with learner click. |
| 6 | Tabbed Interaction | The Four Major Stages • Early Drug Discovery • Pre-Clinical Phase • Clinical Phases • Regulatory Approval | The drug discovery process is divided into four major stages: early drug discovery, pre-clinical phase, clinical phases, and regulatory approval. | Tabbed interface. Each tab opens with stage icon (lab beaker, animal testing, clinical group, approval stamp). | 4 tabs. Each tab shows stage text verbatim from source. |
| 7 | Accordion Interactivity | Early Drug Discovery Sub-steps: • Target identification and validation • High throughput screening and high content screening • Hit identification • Assay development and screening • Hit-to-Lead • Lead generation and optimization • In vivo and in vitro assays | Early drug discovery includes target identification and validation, high throughput and high content screening, hit identification, assay development and screening, hit-to-lead, lead generation and optimization, and in vivo and in vitro assays. | Accordion interaction. Each sub-step expands with supporting image. Icons: DNA, microscope, zebrafish, test tube. | Accordion sections. Insert OST verbatim inside each section. |
| 8 | Flip Cards | Flip Cards Front/Back: Front: Refining compounds | Back: Compounds refined and optimized. Front: Safety testing | Back: Tested in laboratory and alternative models. Front: Dose calculation | Back: Dosage calculated for humans. Front: Scaling production | Back: Production adapted for clinical phase demand. | In the pre-clinical phase, compounds are refined and optimized. They are tested in laboratory and alternative models. Dosage is calculated for human trials. Production is scaled up for clinical demand. | Flip cards. Each card shows keyword on front and detail on back. | 4 flip cards. Add icons (flask, shield, syringe, factory). |
| 9 | Interactive Infographic | Clinical Phases • Phase I: Tolerance and safety tested in 20–80 healthy subjects. • Phase II: Effectiveness, tolerability, and dosage in 100–500 patients. • Phase III: Effectiveness and safety confirmed in thousands of patients. • Phase IV: Post-marketing surveillance and long-term effects. | In Phase I, tolerance and safety are tested in 20 to 80 healthy subjects. In Phase II, effectiveness, tolerability, and dosage are studied in 100 to 500 patients. In Phase III, effectiveness and safety are confirmed in thousands of patients. In Phase IV, post-marketing surveillance looks at long-term effects. | Flowchart infographic with clickable phases. Each phase highlights on click. | Interactive infographic. Ensure each phase text matches verbatim. |
| 10 | Scenario | Regulatory Approval • Data submitted to regulatory authorities. • Approval requires pharmaceutical quality, therapeutic effectiveness, and safety. • Risk-benefit ratio is essential. | For regulatory approval, data is submitted to authorities such as the FDA. Approval requires pharmaceutical quality, therapeutic effectiveness, and safety. A favorable risk-benefit ratio is essential. | Scenario activity: learner selects what data is missing in a mock submission. Feedback given. | Scenario branching. Feedback text: correct/incorrect. |
| 11 | Hotspot Interactivity | Benefits of Zebrafish: • Transparent embryos • 200–300 eggs per fish • Organs mature in 5 days • 70% of genes found in humans; 84% of disease gene homologs shared | Zebrafish are a strong alternative model. Their transparent embryos allow observation without harm. Each fish produces 200 to 300 eggs. Their organs mature within five days. About 70 percent of zebrafish genes are found in humans, and 84 percent of disease gene homologs are shared. | Diagram of zebrafish with clickable hotspots over embryo, egg, organs, DNA. | Hotspot interactivity. 4 clickable hotspots with fact display. |
| 12 | Interactive Quiz | Knowledge Check Q1: Which phase involves dose calculation? Q2: What is the main goal of Phase I? Q3: What is one benefit of Zebrafish? | Let’s check your understanding. Which phase involves dose calculation? What is the main goal of Phase I? And what is one benefit of using zebrafish in drug discovery? | Standard quiz design. Each question displayed one at a time. Icons for feedback. | 3 multiple-choice questions. Provide immediate correct/incorrect feedback. |
| 13 | Image and Text | Summary • Drug discovery is lengthy and costly. • Four major stages: Early, Pre-Clinical, Clinical, Regulatory. • Zebrafish offer ethical, cost-effective alternatives. • Regulatory approval ensures safety and effectiveness. | To summarize: drug discovery is a lengthy and costly process. It has four major stages: early, pre-clinical, clinical, and regulatory. Zebrafish offer ethical and cost-effective alternatives. Regulatory approval ensures safety and effectiveness. | Infographic recap slide with icons for each stage + zebrafish. | Static. Add sequential reveal for bullets. |
| 14 | Image and Text | Congratulations! You’ve completed this module. Click Exit to close. | Congratulations! You’ve completed this module on the Drug Discovery Process. | Celebration screen with certificate/medal graphic. | Static. Trigger LMS completion status. |