Gone Fishing Treatment

The setting of our virtual environment (VE) will be a fishing campsite, set up in a forest clearing on the edge of a lake. The environment will be set in the mid-afternoon, with the campsite including a pitched tent, lit campfire and a table and box of fishing equipment off to one side. The clearing will slope down to a small wooden dock, to be used for fishing. The user will begin the experience in a fixed location at the rear of the campsite and will have freedom to navigate anywhere within the clearing. The VE will use teleportation as the method of locomotion, as the clearing will likely be larger than most users' physical environments. The focus of the VE will be on realism, using assets and textures faithful to the real-world for every element from the fishing supplies to the trees. Ambient audio such as birds chirping, the noise of the lake water and the crackling of the fire, will be added to the immersion. We have outlined the general theme and inspiration for our environment setting through a series of example images, combined into a project mood board.

Mood Board
Our assets and sketches were inspired by the following scenes:

Floor Plan

Figure 1 illustrates the floor plan of the VE, as described above. The elements of the campsite are arranged in an 'open' configuration, allowing the user to move from around the centre of the clearing to reach all points of interest, without having to walk around some obstacle. The path from the user spawn location to the table and onto the dock, which forms the main required route for the environment, is clear and relatively short, while still nearby to less important aspects of the scene such as the campfire and tent.
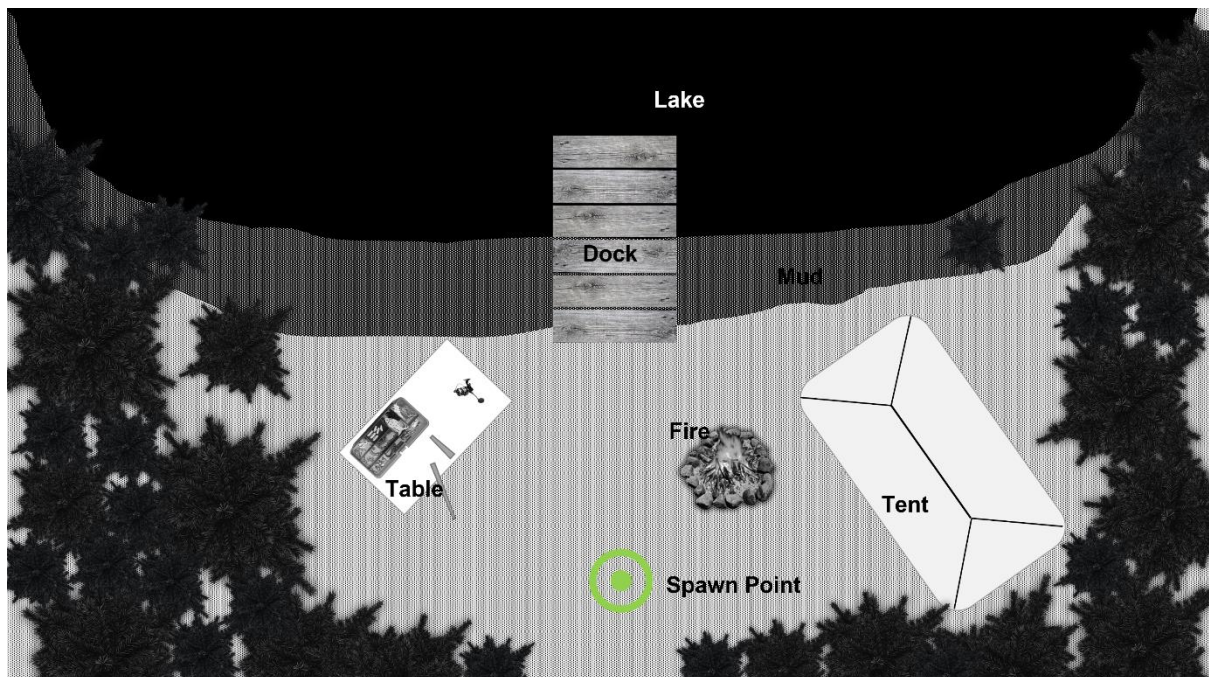

Figure 1: The floor plan of the VE

The goal of the VE is for the user to assemble a fishing rod, complete with reel, gut, hook, and bait, and cast it into the lake to catch a fish. The user may explore the environment as desired, however will ultimately be prompted to stand in front of the supply table and build their fishing rod. The task comprises 5 assembly steps, distinguished by the gestures and parts required to complete them. These steps are thoroughly explained in Figure 8, our state diagram which demonstrates the flow of the VE, Figure 9, our story board which visually depicts each scene the user may find themselves in from a first-person perspective, and Figure 15, our paper prototype. Audio feedback will play a large role in our environment, with ambient sounds of nature, mechanical clicks as each assembly piece is correctly connected, 'whirring' for the reel being (un)wound and the splashes of water when the line is cast into the lake. The assembly process will also be aided by vibrational 'rumble' feedback from the VR hand-held controllers the user will be using to interact with the VE. The line being cast, parts clicking into place and the fish being caught will all evoke a different vibration through the 'rod', as would be the case in the real world. Lastly the campfire, while non interactable, will always be lit, with animated flames and smoke emitted, in addition to sound (crackling) and smell - a match will be lit in the room prior to the user entering the VE.

Sketches

Figures 2 - 7 are a set of sketches and screenshots of 3D models, providing examples of the design of each of the main objects and components of our VE.
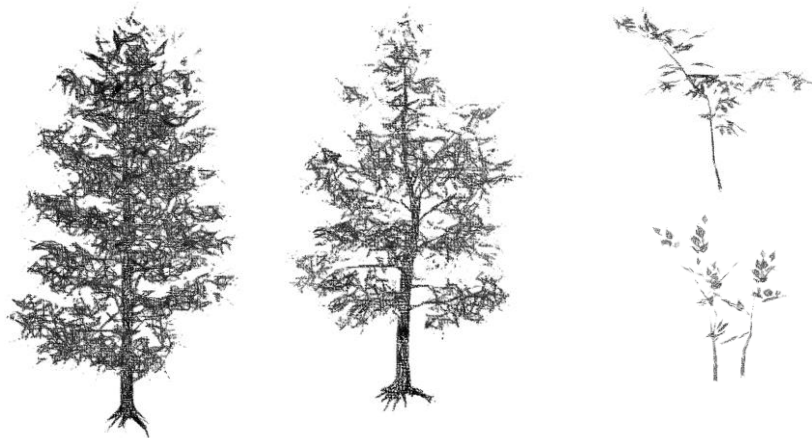

Figure 2: A grayscale example of the types of foliage used in the VE to make up the surrounding forest

Figure 3: The fishing supply table, showing hooks and bobbers (left) and fishing rod components (right)

Figure 4: A sketch of a simple wooden dock

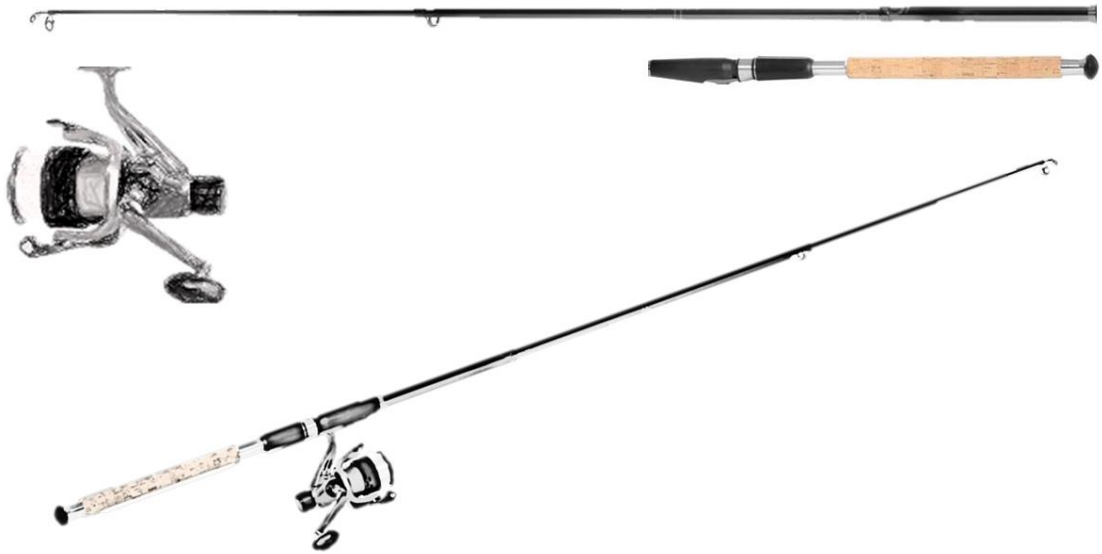Figure 5: Different planned iterations of the campfire

Figure 6: An example fishing rod shown disassembled (above) and assembled (below)
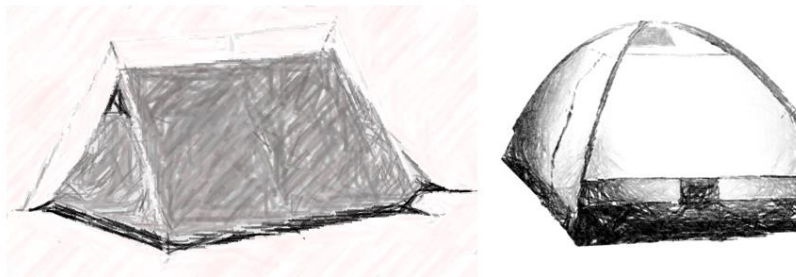

Figure 7: Camping tent options

State-transition diagram

The state-transition diagram below (*Figure 8*), illustrates the interaction the user has with the VE once they have entered it and begin assembling the fishing rod. The diagram also describes error prevention techniques used to guide the user to achieve their goal of catching a fish. Once the user has completed their goal, they can explore the VE or cast the fishing line again to catch another fish.
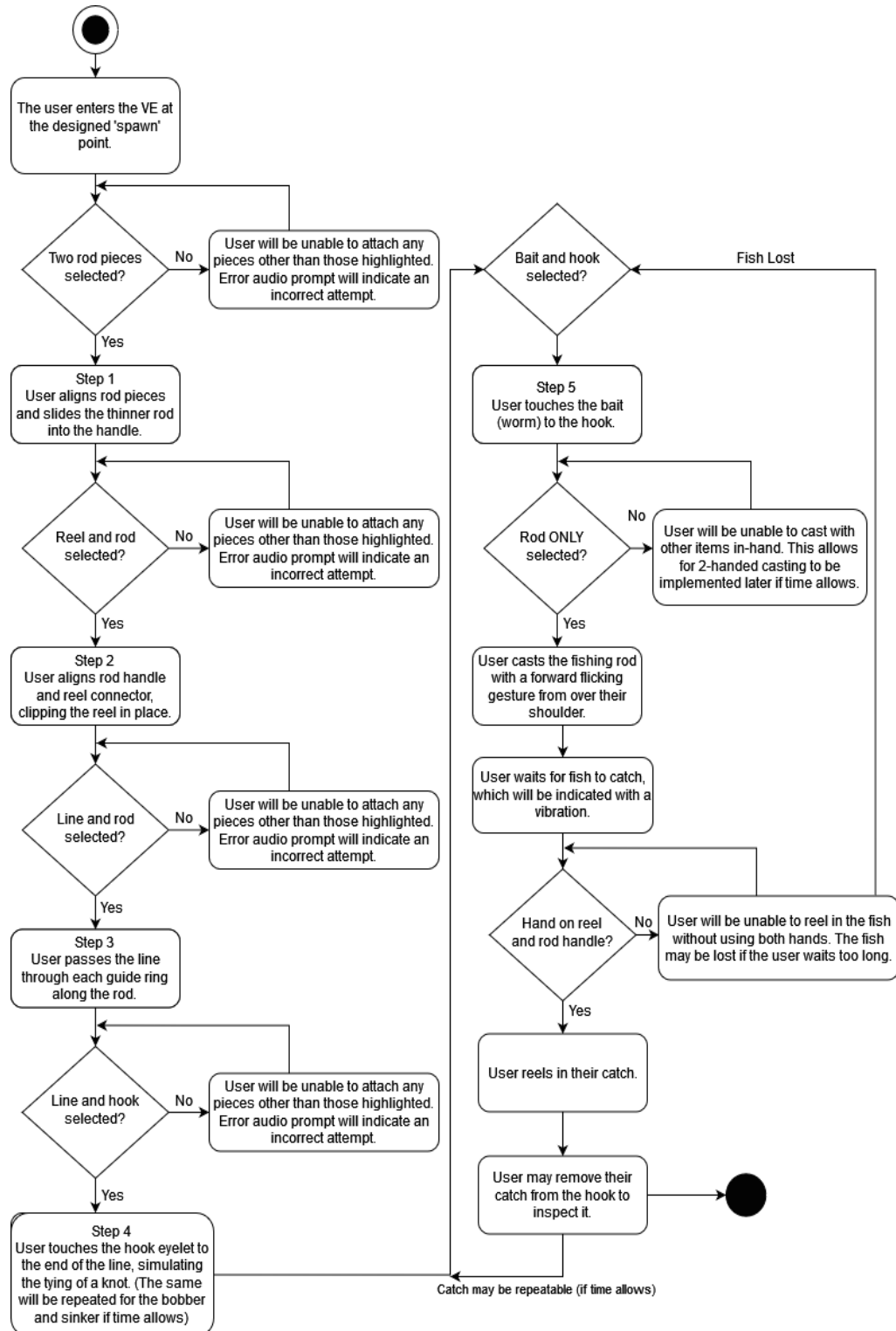
Figure 8: The state-transition diagram for the user interaction in the VE

Storyboard

Our VE's storyboard consists of part A and B, to achieve the main goal of catching a fish. Part A consists of scenes 1- 4 and Part B contains scenes 5 - 8. In Part A, the user enters the VE with a view of the campsite (*Figure 9, scene 1*). The user can navigate to the table where assembly will occur (*Figure 9, Scene 2 - 4*). Once the user has successfully assembled the rod, Part B (*Figure 10*) of the storyboard will begin. In Part B the user is able to cast the fishing line (*scene 5*), wait until a fish has caught onto the line (*scene 6*) and reel in their catch (*scene 7*) to achieve their reward (*scene 8*).

Scene 1, Opening scene

Description: The opening scene will be of a tent, campfire, dock and table with fishing gear on the table top.
Interaction: The user will be able to navigate through the scene using the D-pad to teleport.
Sensory: The scent of a burning match will be smelt by the user.

Scene 2, Begin assembling the rod

Description: The user walks up to the table and starts to assemble the fishing rod by connecting the two poles of the fishing rod.
Interaction: The user will be able to pick up a pole with the rear trigger of the controller. The two controllers will need to be aligned and placed one underneath the other to connect the two rods.
Sensory: Confirmation of successfully aligning and connection of the two rods will be signified through by a 'clicking' sound effect.

Scene 3, Line the rod

Description: The user attaches the reel to the fishing rod and pulls the line through the hoops of the rod.
Interaction: The user will be able to grab the fishing line with the rear trigger of the controller and guide the string through the hoop.
Sensory: A 'clicking' sound effect will indicate to the user that the reel has been attached successfully.
Haptic feedback will be given to the user by the controllers vibrating when the string does not go through the hoop.

Scene 4, Attach the hook and bait

Description: The user will hold the end of the fishing line and attach the hook and bait.
Interaction: The user will grab the string with one controller and attach the hook with the other controller. The hook will be tied automatically to the line. The gesture will be repeated to attach the bait.
Sensory: Audio will indicate that the hook has been tied onto the line.

Figure 9: Part A: the assembly of the fishing rod
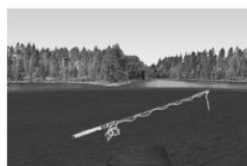
Scene 5, Cast the fishing line

Description: The user will be able to cast the line into the lake.
Interaction: The user will cast the line by holding the rear trigger button on one of the controllers and making a throwing gesture with the other controller.
Sensory: The controllers will vibrate slightly when the line is cast and will be accompanied by an appropriate casting audio.
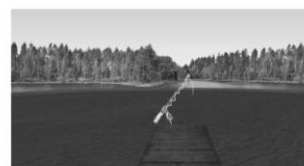
Scene 6, Hook-Set

Description: The user will wait for a pre-determined duration before a fish has been caught.
Interaction: The user will grab and hold the the fishing rod in place by holding in the rear trigger.
Sensory: A caught fish will be signalled by vibrating the controllers.

Scene 7, Reel in the line

Description: A fish is hooked and the user reels in the line.
Interaction:The user will reel in the fish by holding the reel with one controller and holding the rod with the other. A winding gesture with the controller will cuase the reeling of the fishing line.
Sensory: A sound effect will imitate the rotation of the reel.

Scene 8, Unhook the fish

Description: The fish will be unhooked and the user will have accomplished their task.
Interaction: The user will unhook the fish with their controller using the rear trigger to pull the fish off the hook.
Sensory: Audio will indicate that the goal has been achieved.

Figure 10: Part B: The actions the user will perform with their fishing rod to catch a fish

Paper Prototypes

Figure 11 - 14 are the paper prototypes that represent a 3D model of the VE, where the user is represented by a Lego figure. *Figure 11 - 13* illustrate Part A of the storyboard, and *Figure 14* illustrates the user's position in Part B of the storyboard.

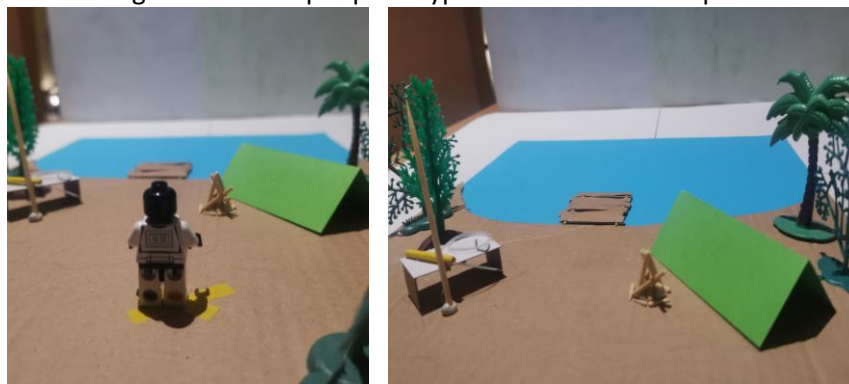Figure 11: 3D Paper prototype of the VE and floorplan

Figure 12: Paper prototype of the user's position (left) and view (right) when entering the VE

Figure 13: Paper prototype of the user's position when assembling the fishing rod

Figure 14: Paper prototype of the user using the complete rod to catch a fish from the dock

Figure 15 details Part A up until the hook is connected. When components are picked up, icons show the hand animation to be used. The highlights guide the user towards interacting with the correct parts and are disabled once the user has completed an appropriate task (e.g., picked the part up).

1. Both parts of the rod are highlighted

2. The two connecting parts are highlighted

3. User brings the parts together

CLICK

The rod is connected

4. The rod handle & reel are highlighted

5. The area to clip in the reel is highlighted

CLICK

6. User brings the parts together

The reel is connected to the rod

7. The line & first hoop is highlighted

8. User threads the line through hoop 1

9. The second hoop is highlighted

The user has strung the line

10. The hook is highlighted

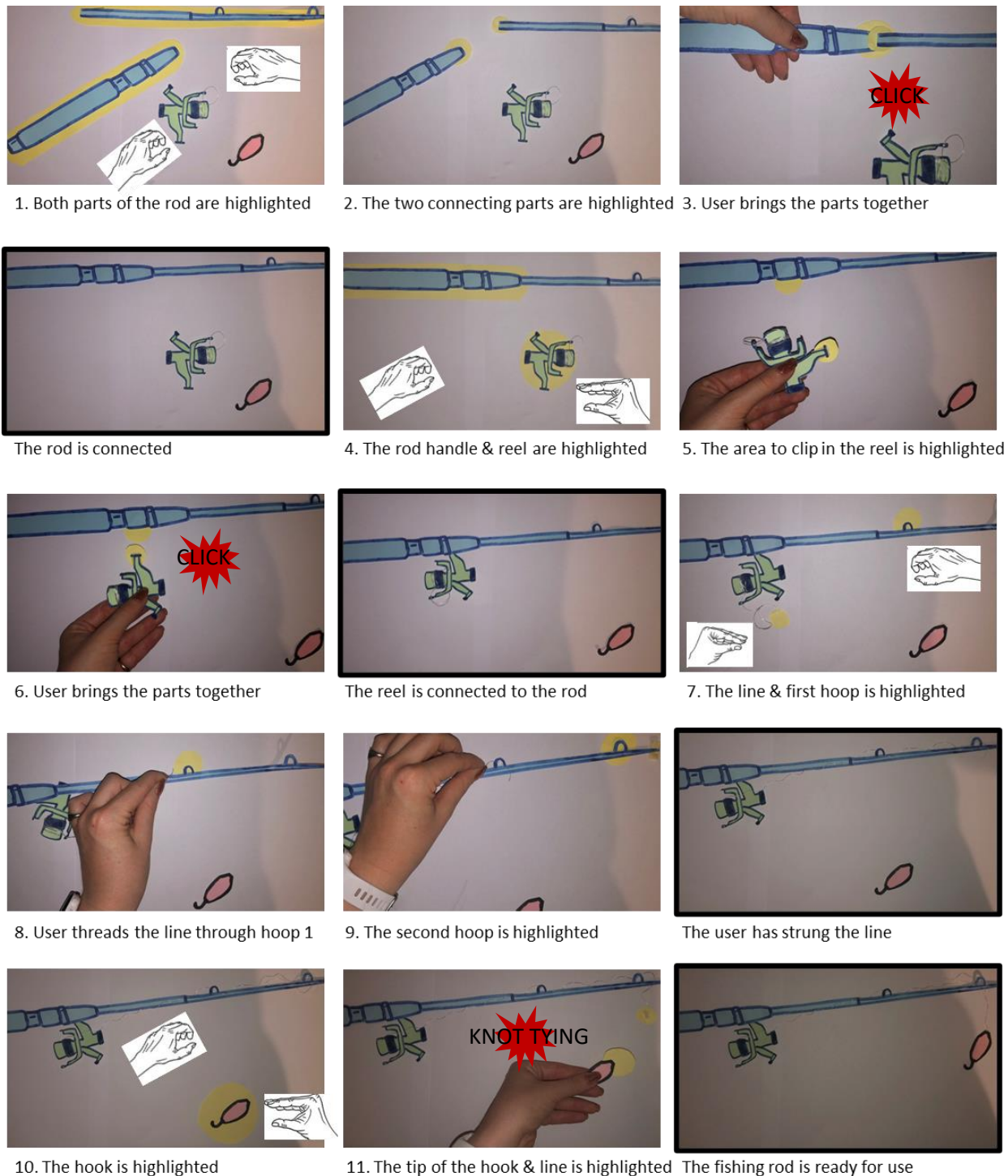11. The tip of the hook & line is highlighted

KNOT TYING

The fishing rod is ready for use

Figure 15: Constructing the fishing rod

Key:

Rod end

Rod handle

Reel

Hook

Resting position for hands