A "Checklist" Approach to CoSpaces Edu

CoSpaces level: Beginner to intermediate
Education level: Middle or high school
Subjects: Coding/design process
Skills developed: 3D modeling, design process, coding
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Introduction:

Too often, students simply follow steps to cookie-cutter lessons. Usually this approach allows students to reach their end goal, but do they really know how they got there? Could they recreate the steps on their own?
This open-ended lesson provides guidelines and examples for students while allowing them to take charge of their own learning.

Student benefits:

- Learn basic 3D creation skills
- Develop spatial awareness
- Develop creativity
- Develop collaborative skills
- Develop coding skills
- Develop computational and critical thinking skills

Activity example:

1. Begin by showing students a few interactive CoSpaces from the CoSpaces Edu Gallery. Or, allow them to explore the Gallery themselves. Ask them which scenes they like and why.

2. If you are comfortable doing so, demonstrate the basics of designing in CoSpaces Edu for your students.

3. Once students have a feel for what can be accomplished with CoSpaces Edu, assign the "Welcome to CoSpaces Edu" CoSpace: cospac.es/BMNW Here, they will learn the basics to designing their own CoSpace.

4. Explain to students that they will be building an interactive CoSpace of their choice. It can be realistic like a classroom, mall, store or zoo or it can be a fantasy space like a castle, underwater world or outer space. Review the checklist with students and explain that for now they are only focused on the left column - Design Features. As they design, they should think about how the user will interact with the space, but coding will come later.

5. Show students the demo CoSpace that corresponds to the worksheet. Explain that this CoSpace will further explain their options while designing and coding their CoSpaces. (*note: The demo CoSpace is not remixable. Students can see snippets of code in the CoSpaces but are not allowed to copy objects and code from the demo CoSpace.)

...DESIGN...	...................CODE...................	...SAMPLES...
Features 1	Events & Transform	Interactive
Features 2	Paths & Loops	Parkour
Features 3	Info, Choice, Quiz Panels	Scavenger Hunt
Complex item	Restart Scene Boolean Variables	Move Camera
Physics	Go to Scene Numeric & String Variables	
	Run Parallel Random & Lists	

Click to see examples - Look up and click the airplane in any scene to come back to this menu

6. Create an assignment named "Interactive CoSpace". If you are allowing students to work collaboratively (recommended), you will need to create the groups in the assignment.

7. Discuss the rubric with students. Their goal is to design at least 50 points worth of items and 50 points worth of coding. (Adjust as you see fit.)

8. As they are designing and coding, encourage collaboration! Remind them that collaboration is key in "the real world". Working together will almost certainly ensure a better outcome!

9. Wrap up the project with a day of sharing. Ideally, if you have enough devices, students could walk the room, experiencing their peers' creations, offering each other feedback.

Creation guide

DESIGN: Alone or with a partner, you will design your virtual CoSpace.   It can be a realistic scene like a classroom, mall, town, store or zoo or it can be a fantasy CoSpace like a castle, underwater world or outer CoSpace.

CODE: As you build, think about how you will make your scene interactive by coding different elements. APPLY THE DESIGN PROCESS! Think about your users. Where will you place the camera for them to begin? Is there a goal? How will they know what they are supposed to do/look at? Do you need to provide instructions?

IDEAS (not requirements) : Interactive tour (Town, mall, art gallery, school, etc.) - Scavenger Hunt - Parkour - Trivia/Quiz - Recreate book or movie - Choose your own adventure - Escape Room - Puzzle - Maze - Rube Goldberg - Educational (teach us something!)

DESIGN Features 1:
- ☐ (5) Set Environment
- ☐ (5) Uploaded image
- ☐ (5) Uploaded photo taken by you
- ☐ (5) Uploaded image that YOU created in Google Drawing or similar tool
- ☐ (5) Stage image
- ☐ (5)Text or Text Panel
- ☐ (5) Animation (posture,speech,etc.)
- ☐ (5) Change appearance/material (color, opacity, etc.)
- ☐ (5) Attach 2 items (picture on wall, kid on horse, etc.)
- ☐ (5) Uploaded 3D object

DESIGN Features 2:
- ☐ (5) Uploaded Audio
- ☐ (5) Audio you recorded in CoSpaces Edu
- ☐ (10) Video or animated GIF you created

DESIGN Features 3:
- ☐ (30/20/10) Complex/Moderate/Simple item you created with building blocks
- ☐ (30/20/10) Imported object (.obj) you created in Tinkercad (or elsewhere?)

- ☐ (10) physics
- ☐ (20) Multiple scenes
- ☐ (?) Your own (teacher approved) idea

CODING Elements:EVENTS
- ☐ (5) when play clicked
- ☐ (5) when item hovered
- ☐ (5) collision
- ☐ (5) when item clicked
- ☐ (5) when key pressed

TRANSFORM
- ☐ (5) move
- ☐ (5) scale
- ☐ (5) turn
- ☐ (10) move on path
- ☐ (5) move camera
- ☐ (5) turn camera
- ☐ (10) move camera on path

ACTION
- ☐ (5) set animation
- ☐ (5) say or think
- ☐ (5) play video
- ☐ (5) set color/opacity
- ☐ (5) play audio
- ☐ (5) show info panel
- ☐ (10) quiz panel
- ☐ (15) choice panel

CONTROL
- ☐ (10) loop
- ☐ (10) run parallel block
- ☐ (10) go to scene
- ☐ (10) restart scene

DATA/OPERATORS
- ☐ (10) random or random color
- ☐ (10) use a list
- ☐ (15) boolean(true/false) variable
- ☐ (15) numeric variable (counter)
- ☐ (5) string variable
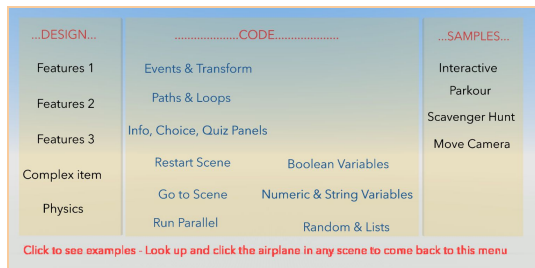- ☐ (?) Your own (teacher approved) idea

Check off each option that you use to collect your points. You may use them as many times as you need but will only earn points for the first use.

Resources:
CoBlocks Reference Guide
CoSpaces Edu Key Features Overview
CoSpaces Edu Youtube Tutorials

Scan to visit demo space

Click to visit Demo CoSpace

	😋 20 points	🙂 15 points	😐 10 points	😒 5 points
Environment	Environment is creative and cohesive. Chosen objects have purpose.	Environment is mostly cohesive but has some random or silly elements that don't fit in/add value.	The beginnings of a cohesive CoSpace are apparent but more work is needed.	There is no theme - environment is just a mish-mash of objects.
Interactivity	CoSpace is highly interactive, offering users an engaging experience.	CoSpace is interactive, offering users a somewhat engaging experience.	CoSpace has some interaction but is not very engaging.	CoSpace is sparse and unengaging. The user does little besides look around.
Design Elements	Includes 50 or more points worth of design objects.	Includes 36-49 points worth of design objects.	Includes 21-35 points worth of design objects.	Includes less than 20 points worth of design objects.
Coding	Includes 50 or more points worth of coding.	Includes 36-49 points worth of coding.	Includes 21-35 points worth of coding.	Includes less than 20 points worth of coding.
Effort/Behavior	Always on task, contributed equally to partner work, worked well with others.	Mostly on task, contributed to partner work, worked well with others.	Sometimes on task, contributed little to partner work, sometimes worked well with others.	Seldom on task, contributed minimally to partner work, distracted others.