

Animation Prototyping for Games

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So we played this game at Epic...



The Challenge



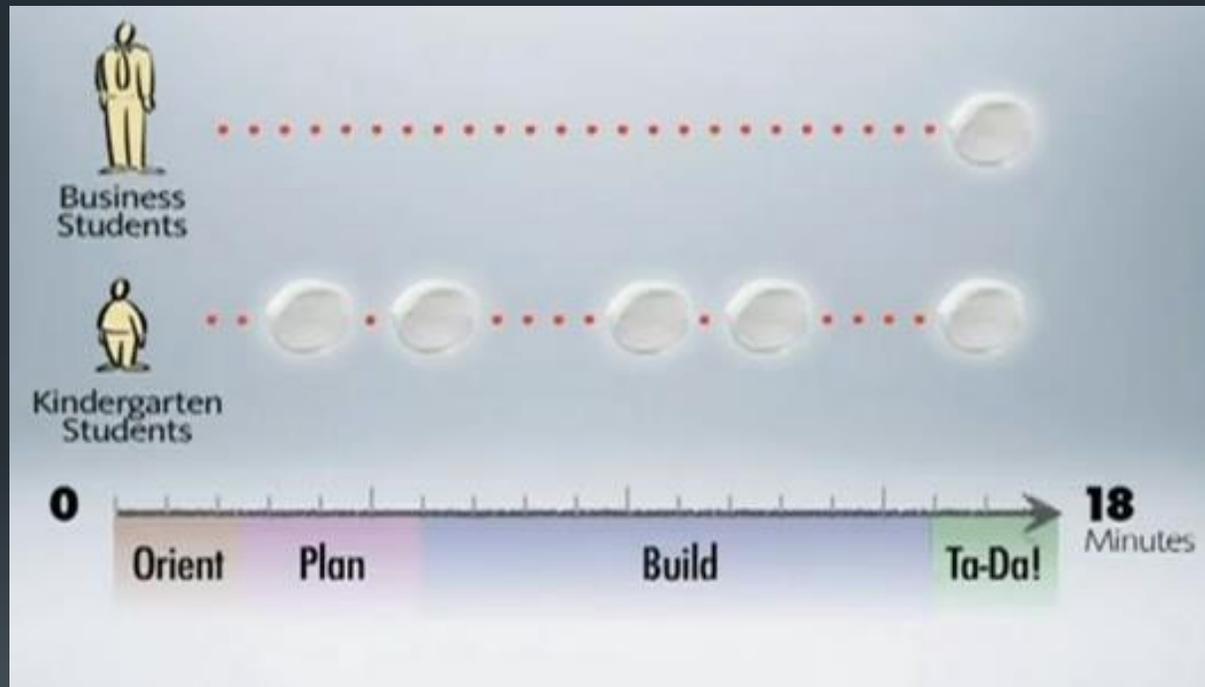
Eighteen Minutes
Teams of Four
Tallest Freestanding Structure



20 sticks of spaghetti + one yard tape + one yard string + one marshmallow



Guess what group consistently builds the tallest towers?



Prototyping:

- an early sample, model or release of a product built to test a concept or process or to act as a thing to be replicated or learned from.

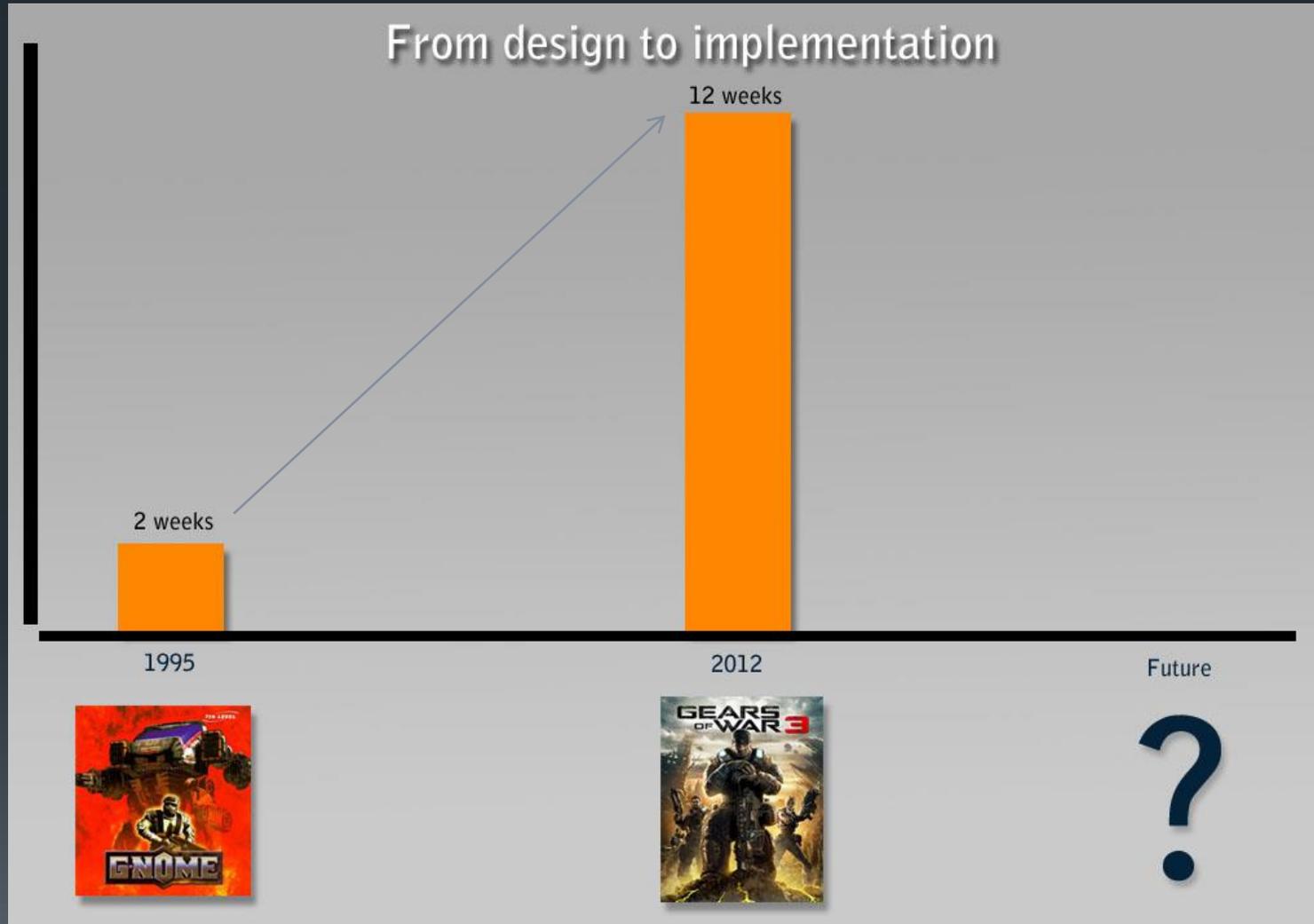


Somehow, we got off track...

- Kids naturally iterated.
- Many game developers don't, but why?



It happened gradually...



As game developers, what is our “Marshmallow Challenge”?



- Games are pretty complex things
- They can have pretty large teams
- They are made for an audience
- Games require a creative process

I'm going META

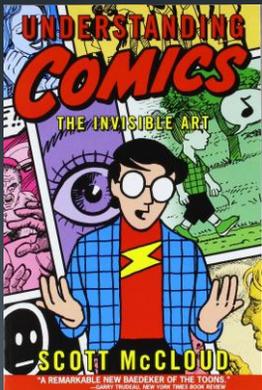
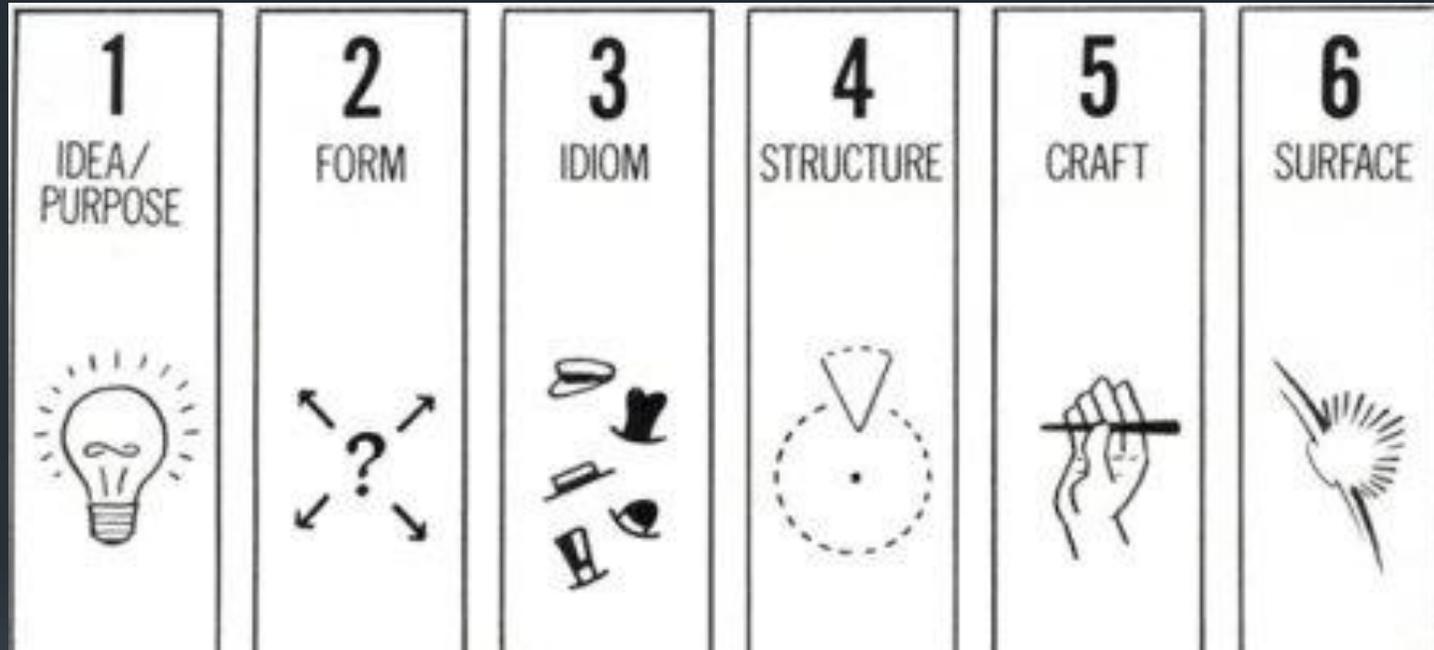
- What is the creative process?
- What is a game?
- What is our role?

If you want to make an apple pie from scratch,
you must first create the universe.

(Carl Sagan)



The Creative Process



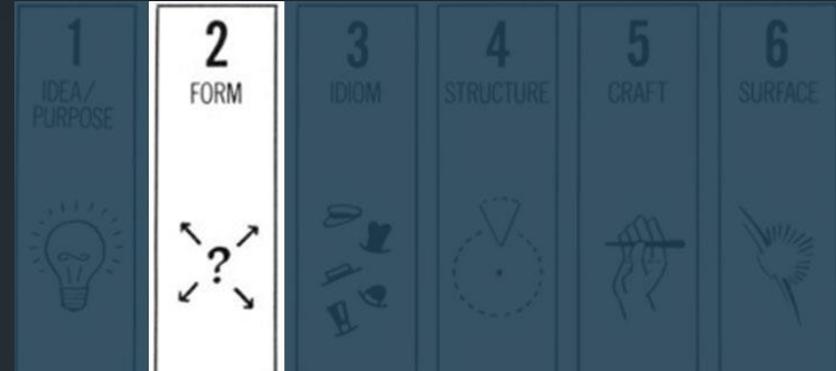
Idea for your project?

- WHY do you want to make something?

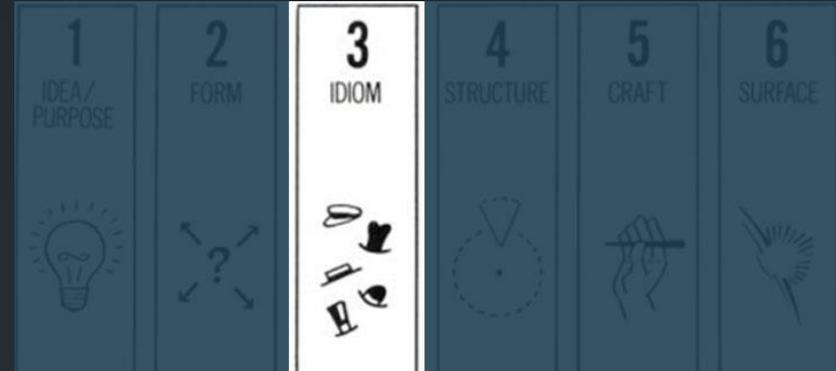


Form

- What will you make to fulfill the purpose?



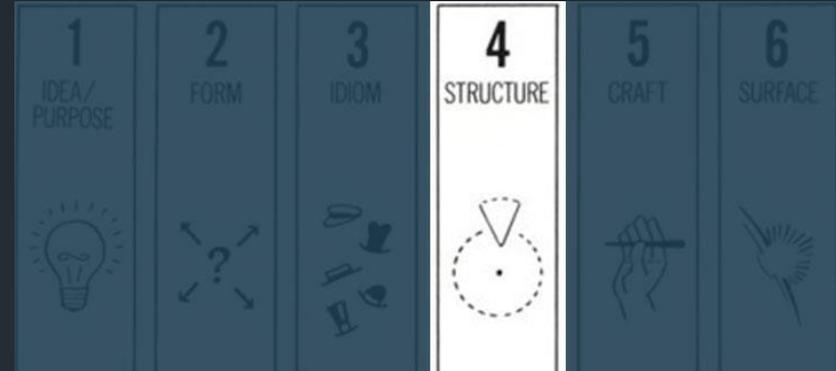
Idiom



- Narrow down the form
- Genre, style



Structure

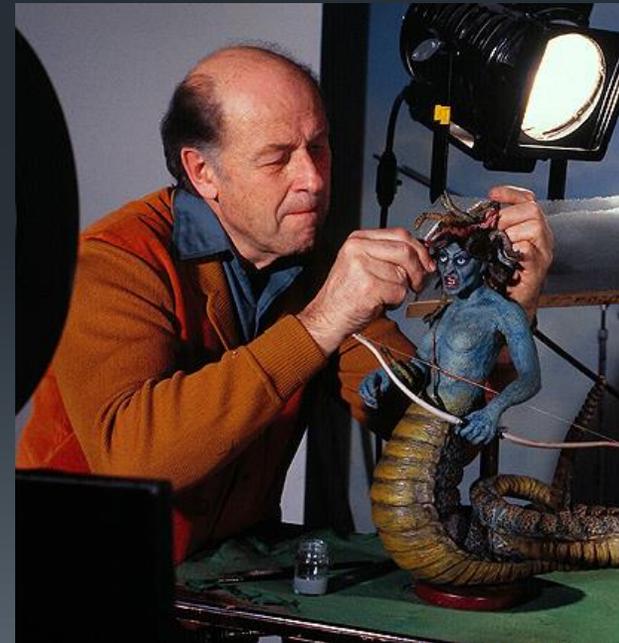


- What components are needed to express your idea/purpose?



Craft

- You doing all the beautiful work you do.



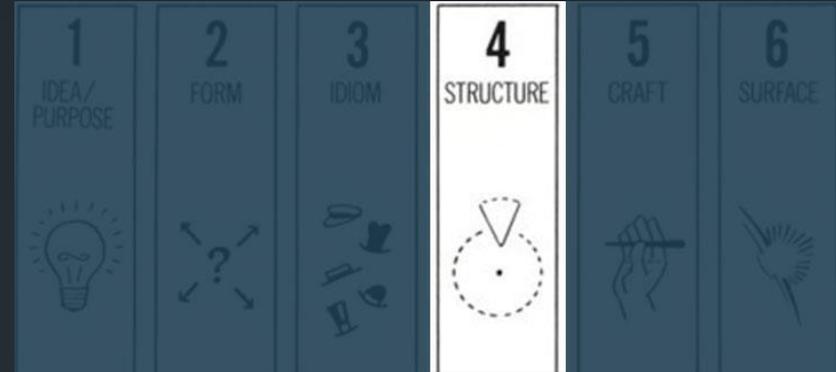
Surface



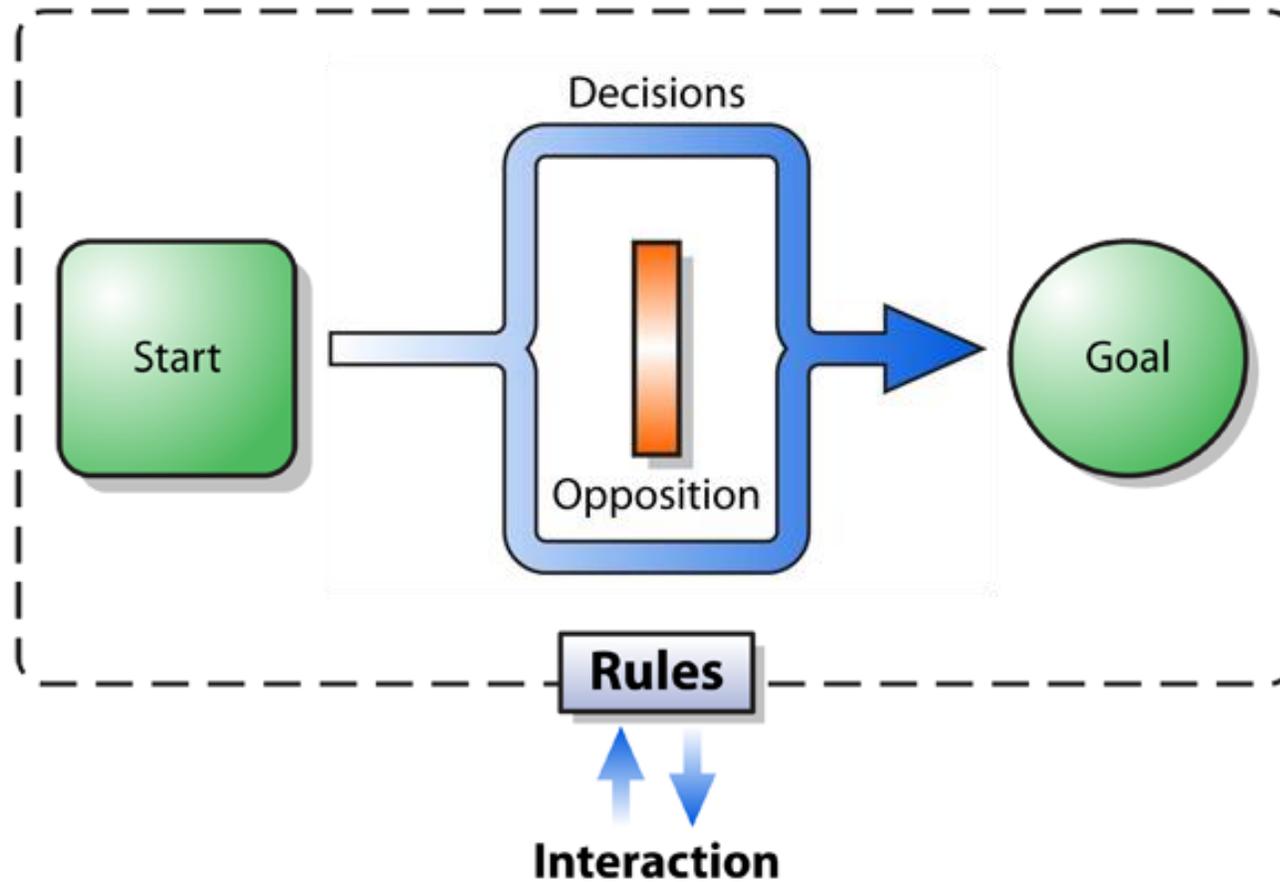
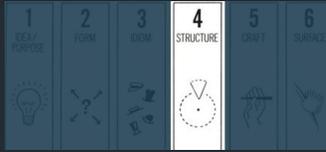
- The final boxed product!
- Did the purpose survive? Did the idea?
- It looks shiny on the outside. What about the inside?



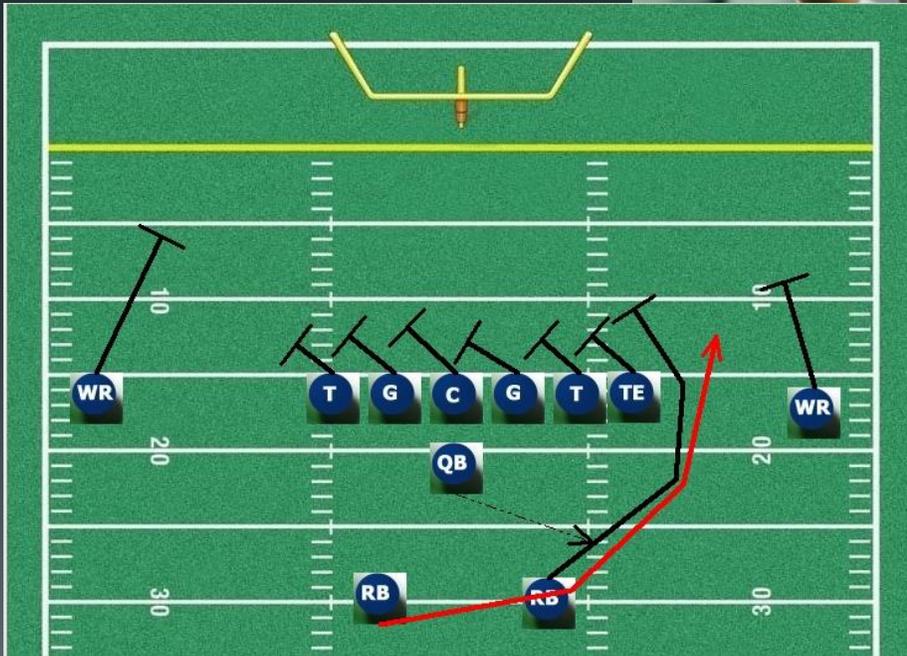
Let's go back to structure



What is the structure of a game?

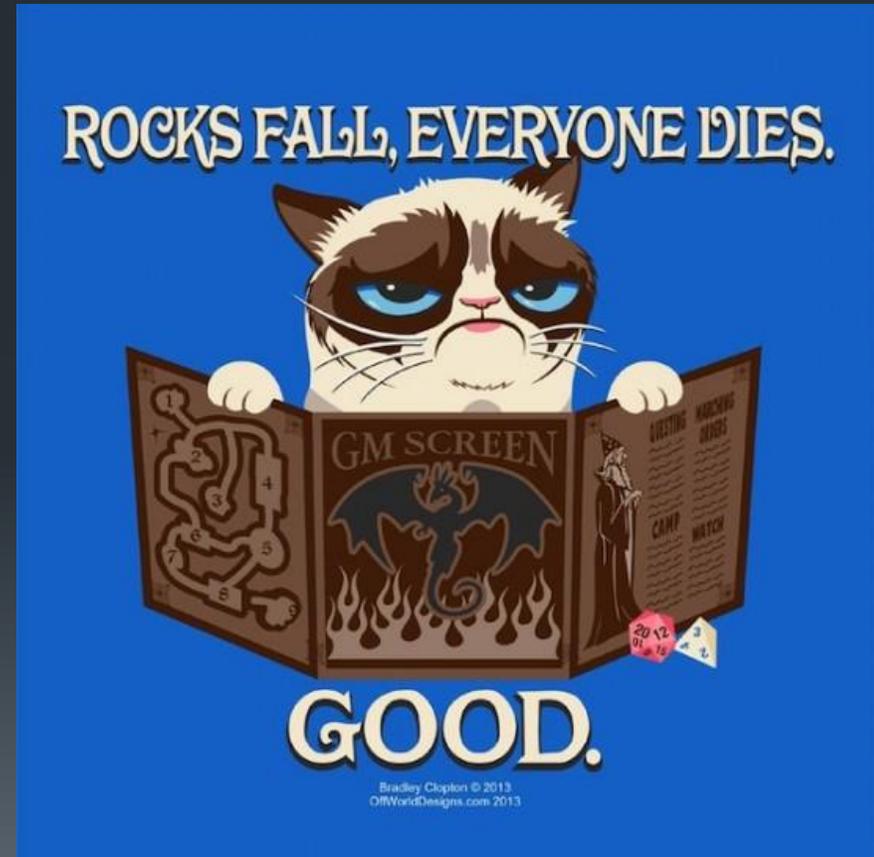




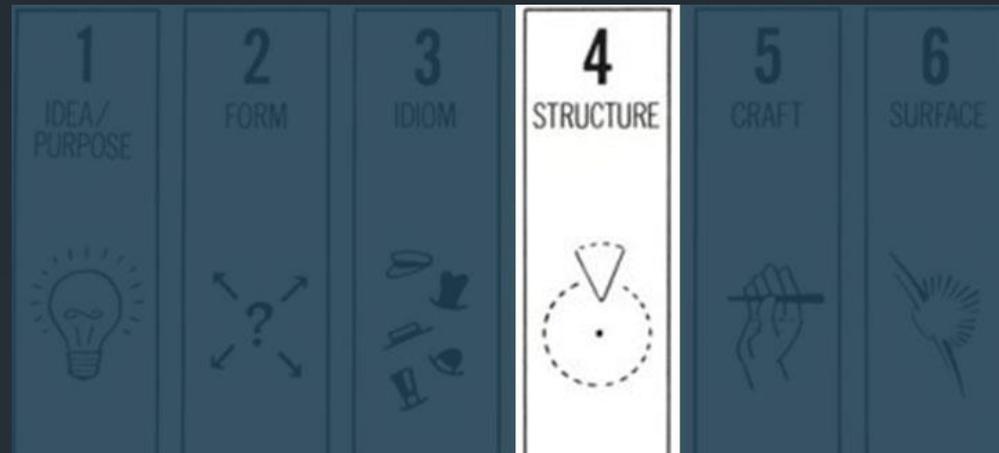


Where do animators come into this scenario?

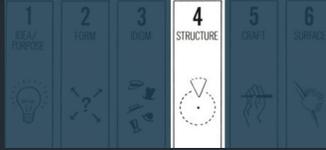
- We are the game's communicators!
- We share this task with audio, FX, UI, etc.



This is where we help lay the foundation for the structure

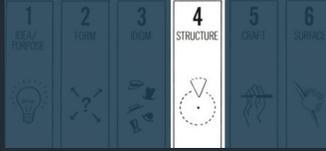


Prototype here!!!!



So it's day one. What does this look like?

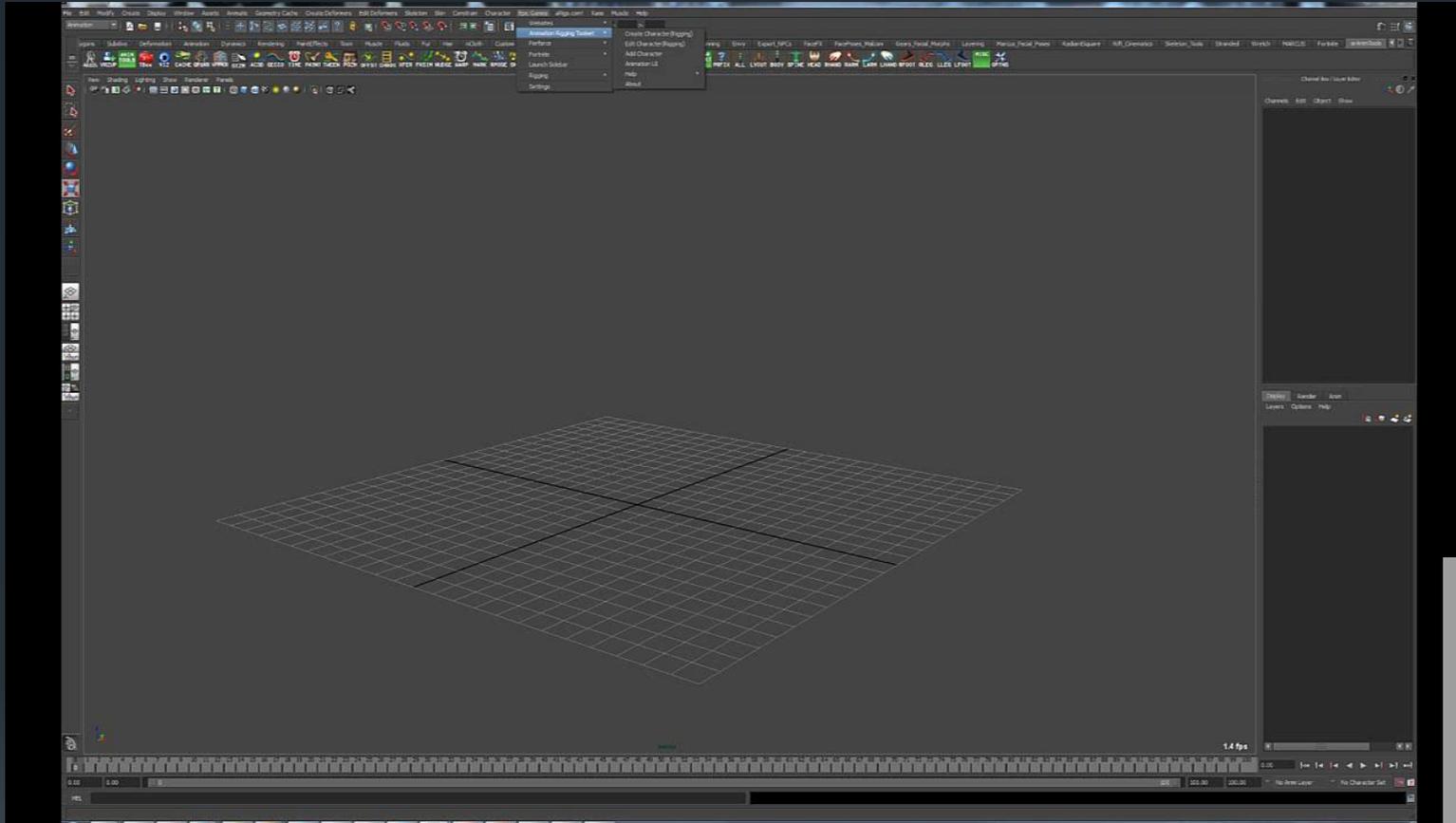
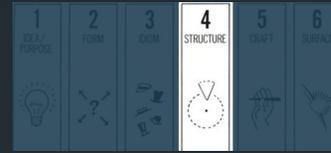
- Gameplay ideas.
- Gray-boxing levels
- Art team is just ramping up concepts
- Animators need to feed designers immediately.



Pipeline made for speed/iteration

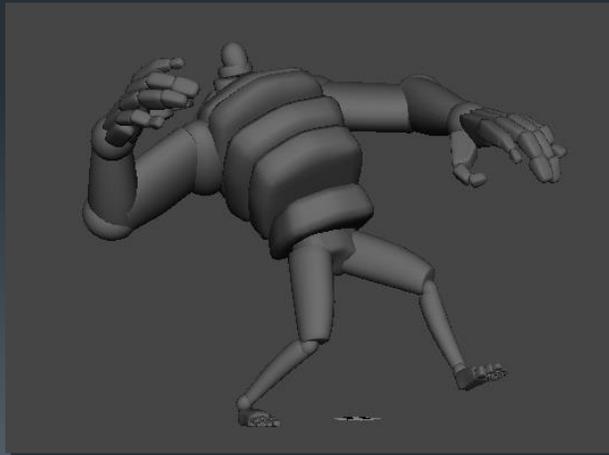
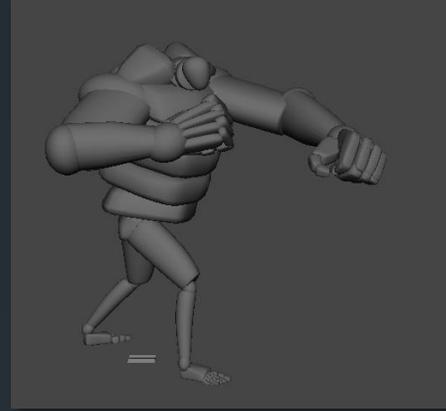
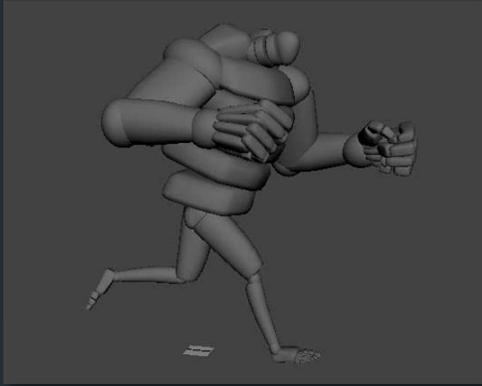
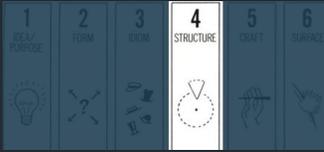
- Fast but not ugly
- Communicate only what you need to
- Re-use, retarget

Fast content creation tools



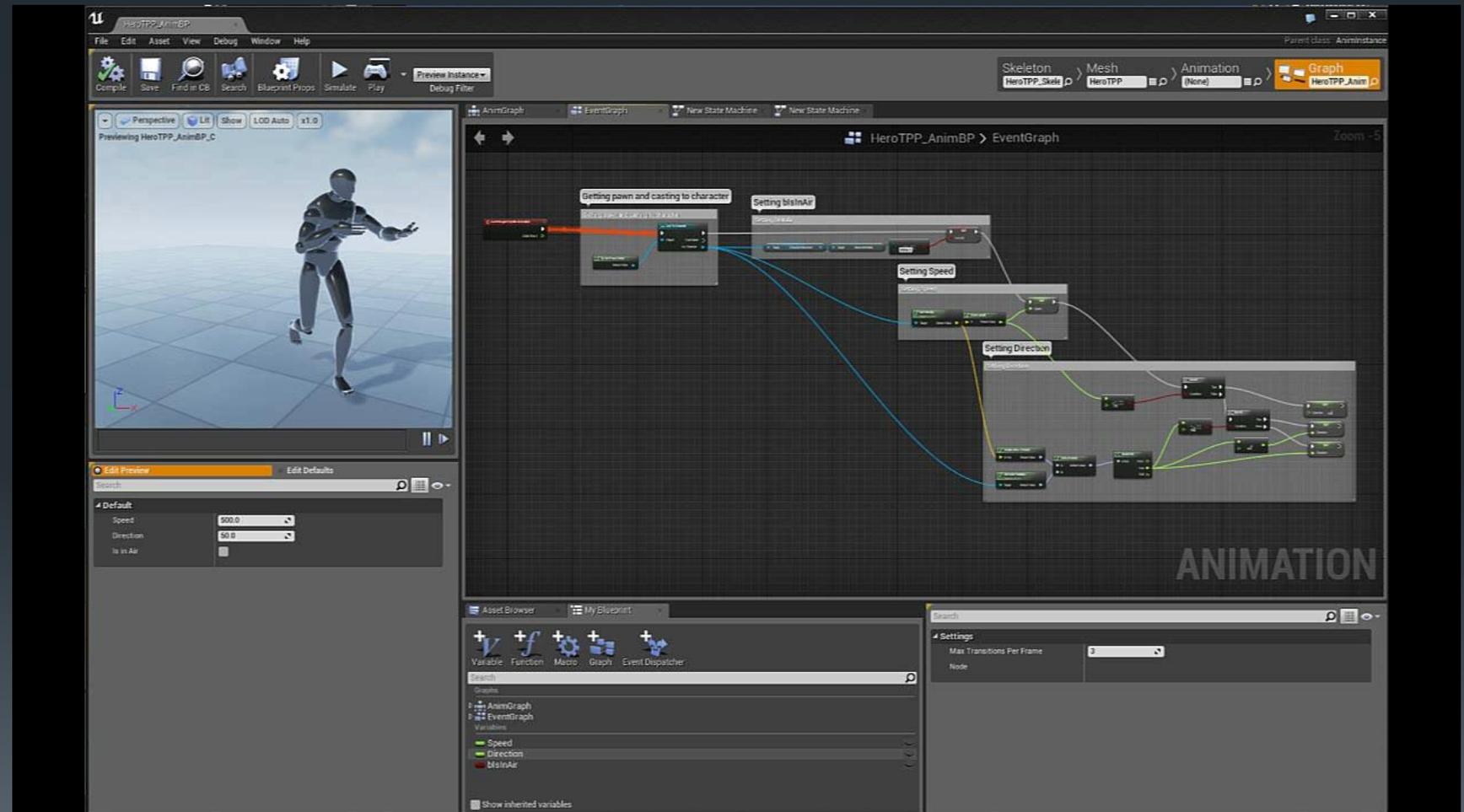
- Creates any proportioned biped we need
- Standardized skeletons for project
- Animation, mocap and pose libraries

What are the verbs in the game?

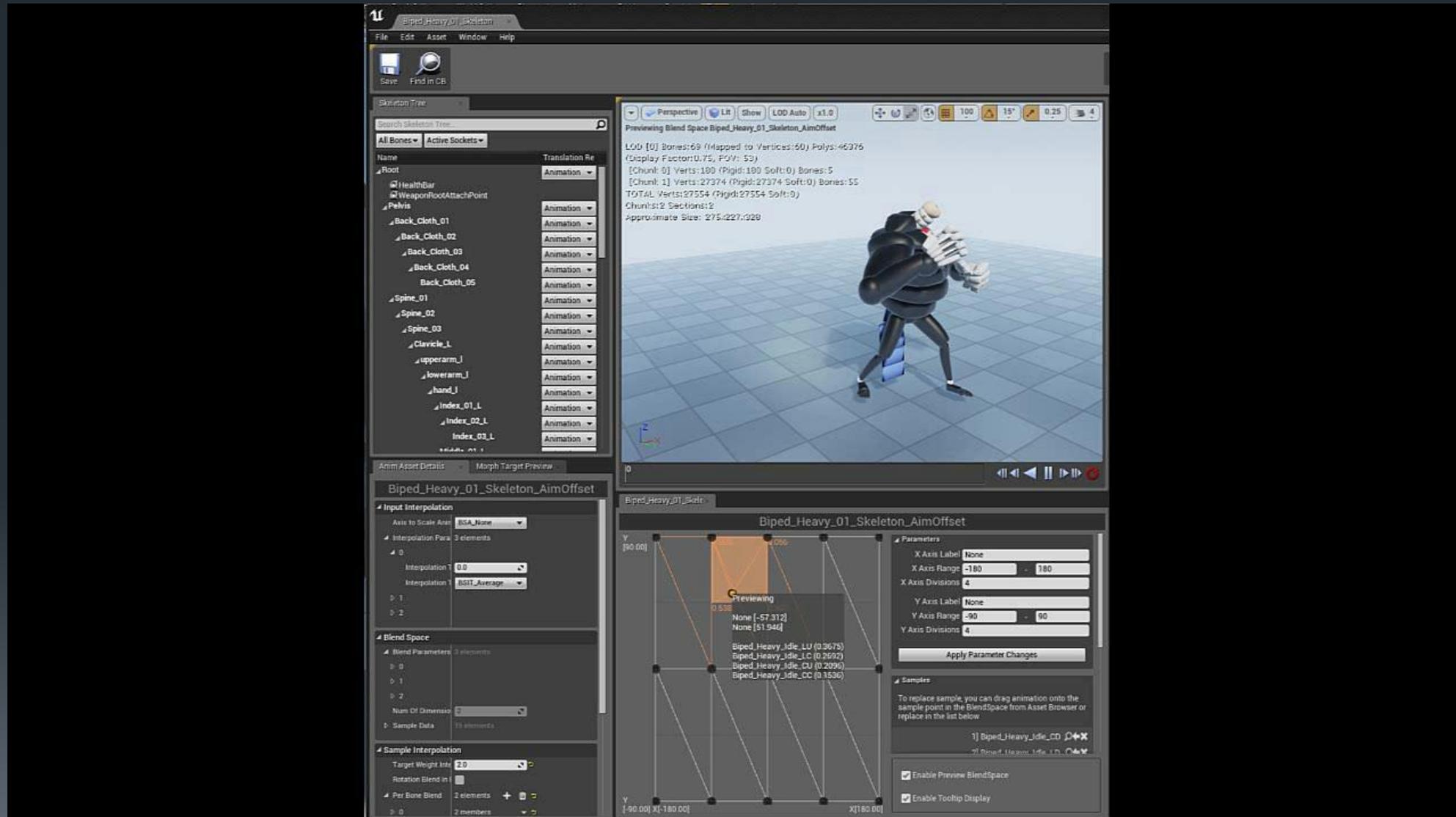
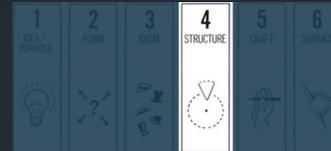


Fast import and setup process

- Easy export/import tools
- We use FBX

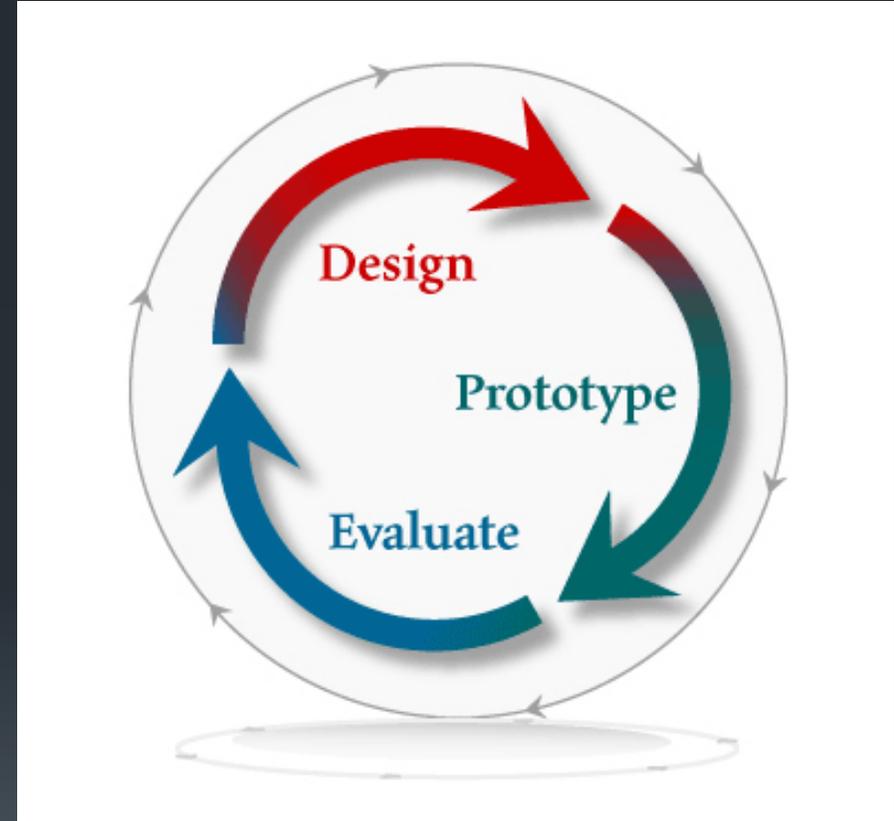


And get them functional in the game

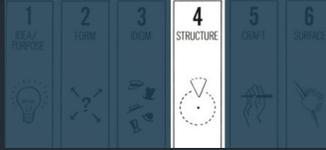


Playtest (what are you testing for?)

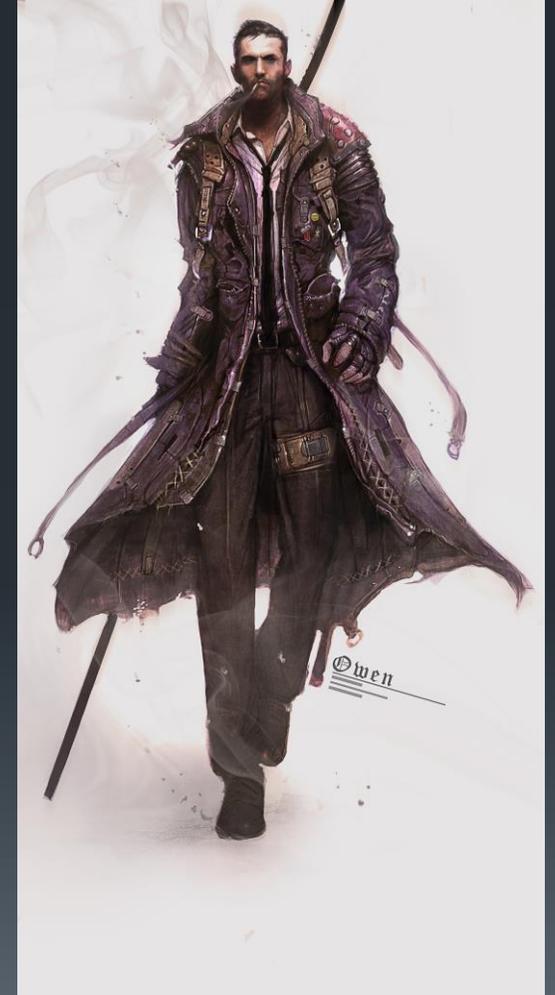
- Only test 1-2 variables at a time.
- Is the animation communicating the game?
- Does it need help from FX, Audio, etc.
- Responsiveness
- Nothing is sacred. Feedback is essential!



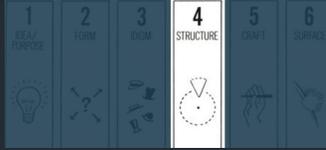
Art department starts making great things!



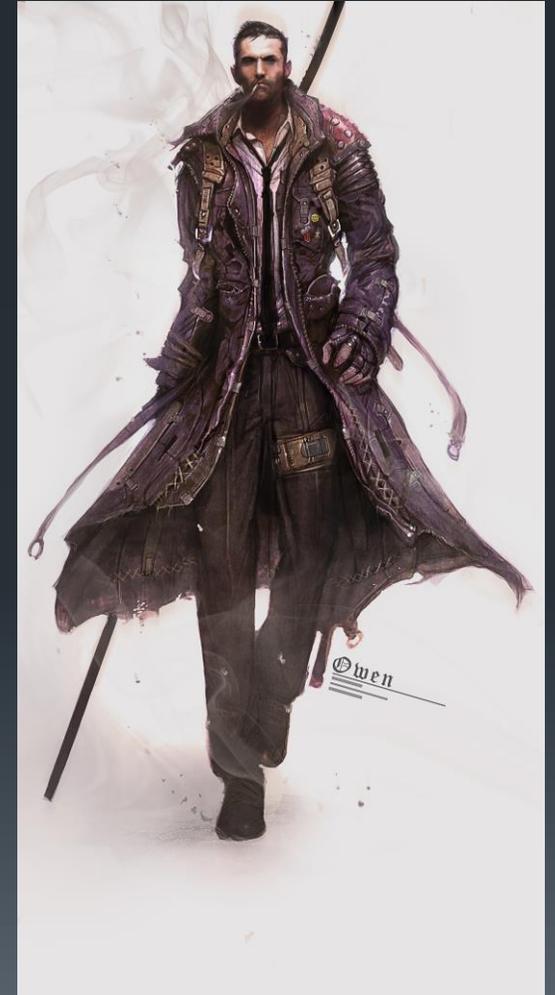
- How do we smoothly transition into integrating art assets without slowing down the iterative process?
- How do we roll the art team into the prototyping process?



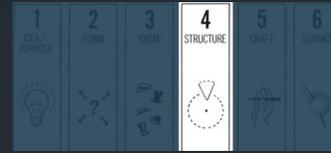
Concept Art



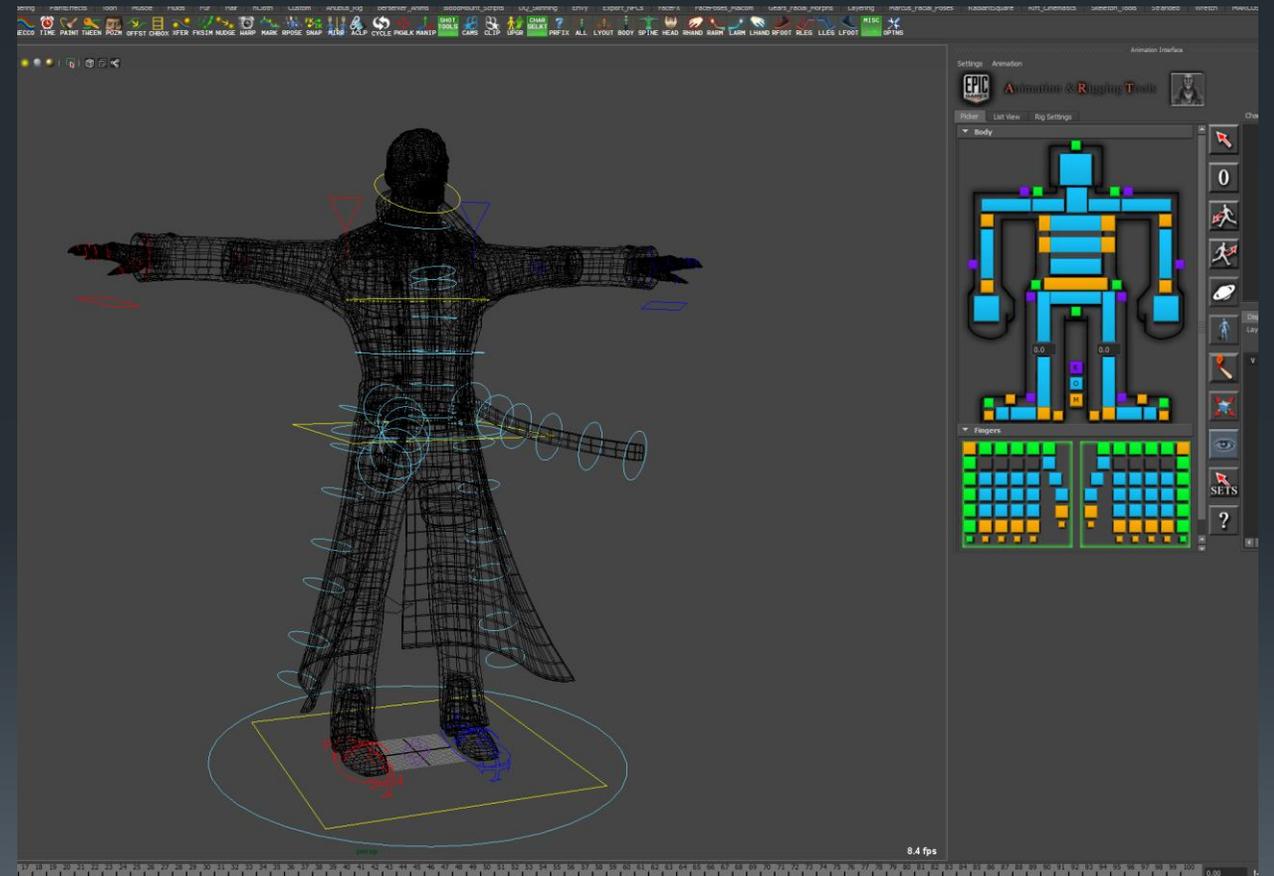
- Concept artists informed by essence of gameplay
- Function helps define form
- Form inspires function



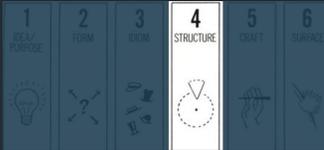
Meshes for Rigging



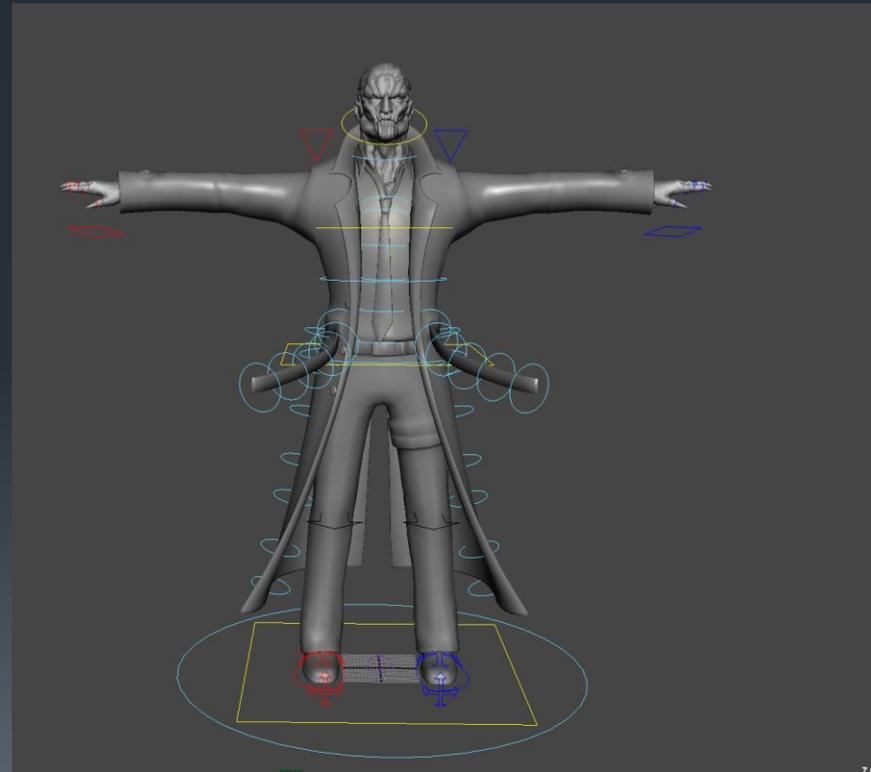
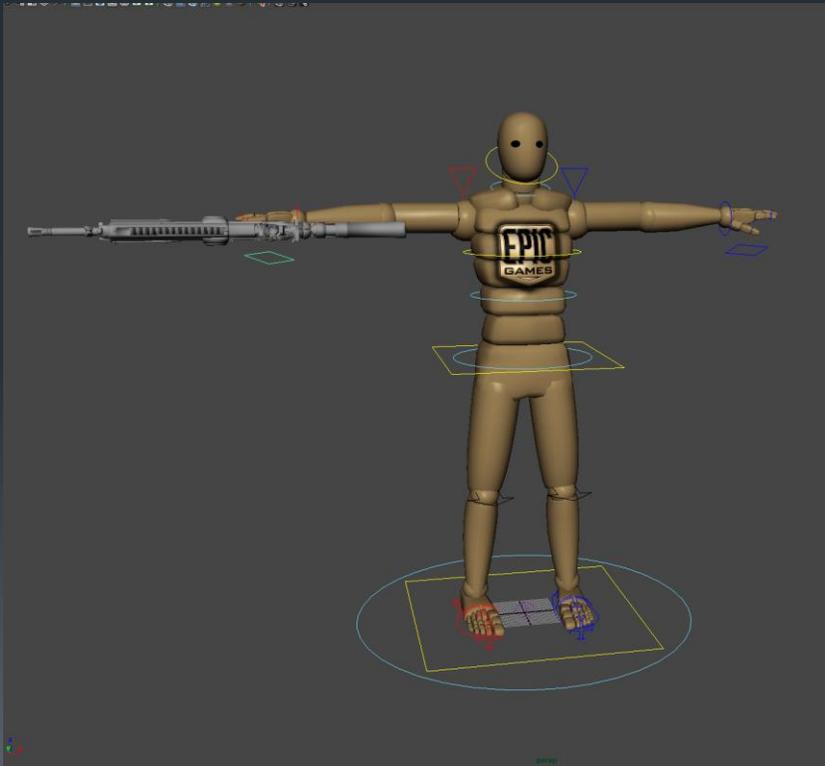
- Mock-up of early models are rigged quickly.
- How do they affect gameplay communication?

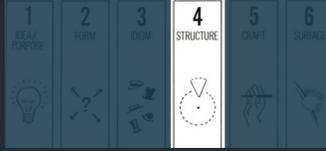


Retargeting



- Retarget proto-animations within minutes



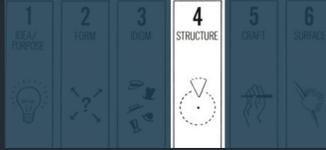


As these assets are created, we all know the “why” or their purpose in the game.

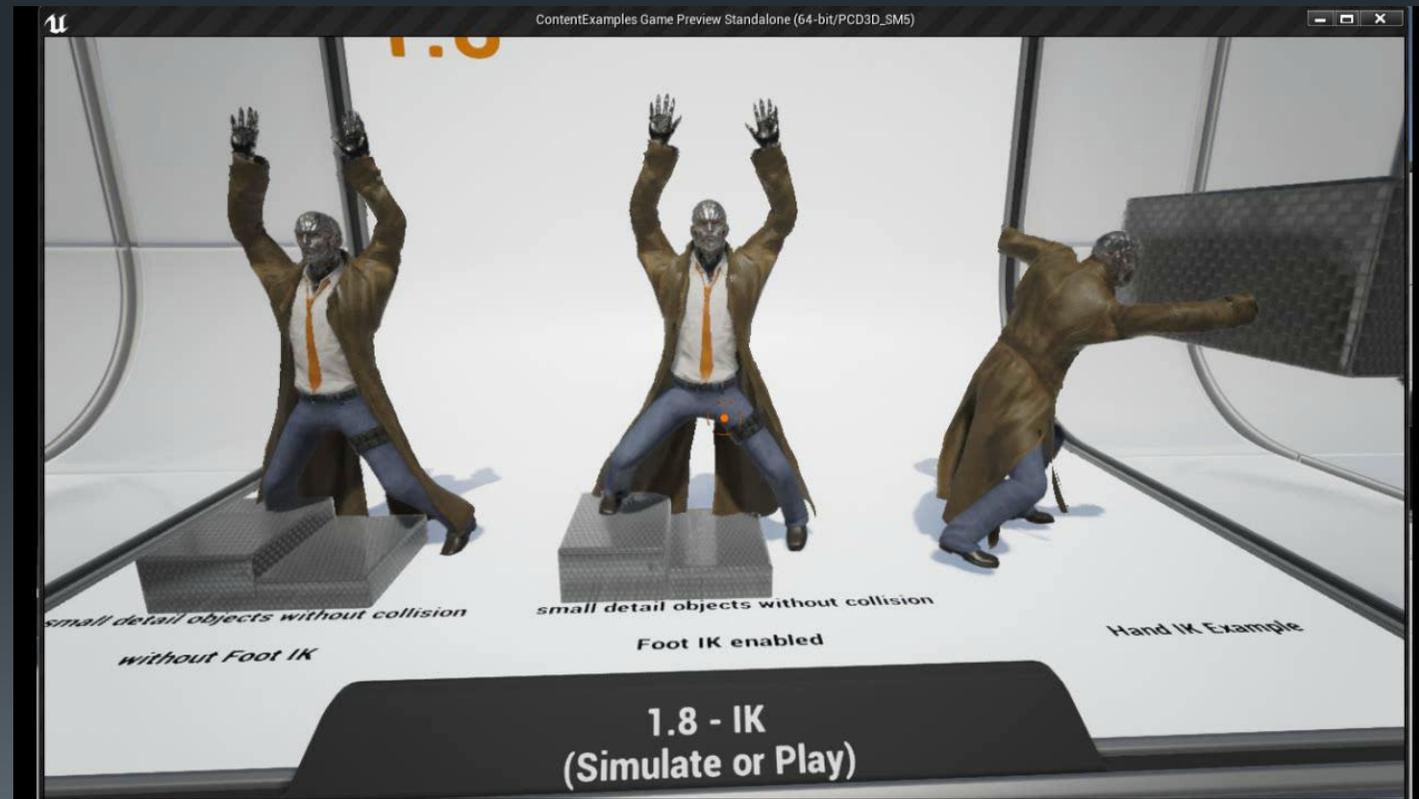
- They are serving the Idea, the form and the structure.
- They are supporting communication of the game.

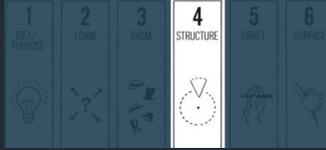


Technical side of prototyping



- **Animation systems get prototyped:**
 - Cloth, fur, or any dynamic systems
 - Blending trees, IK, animation layers, replication, etc





But, hey, what about harsh reality?

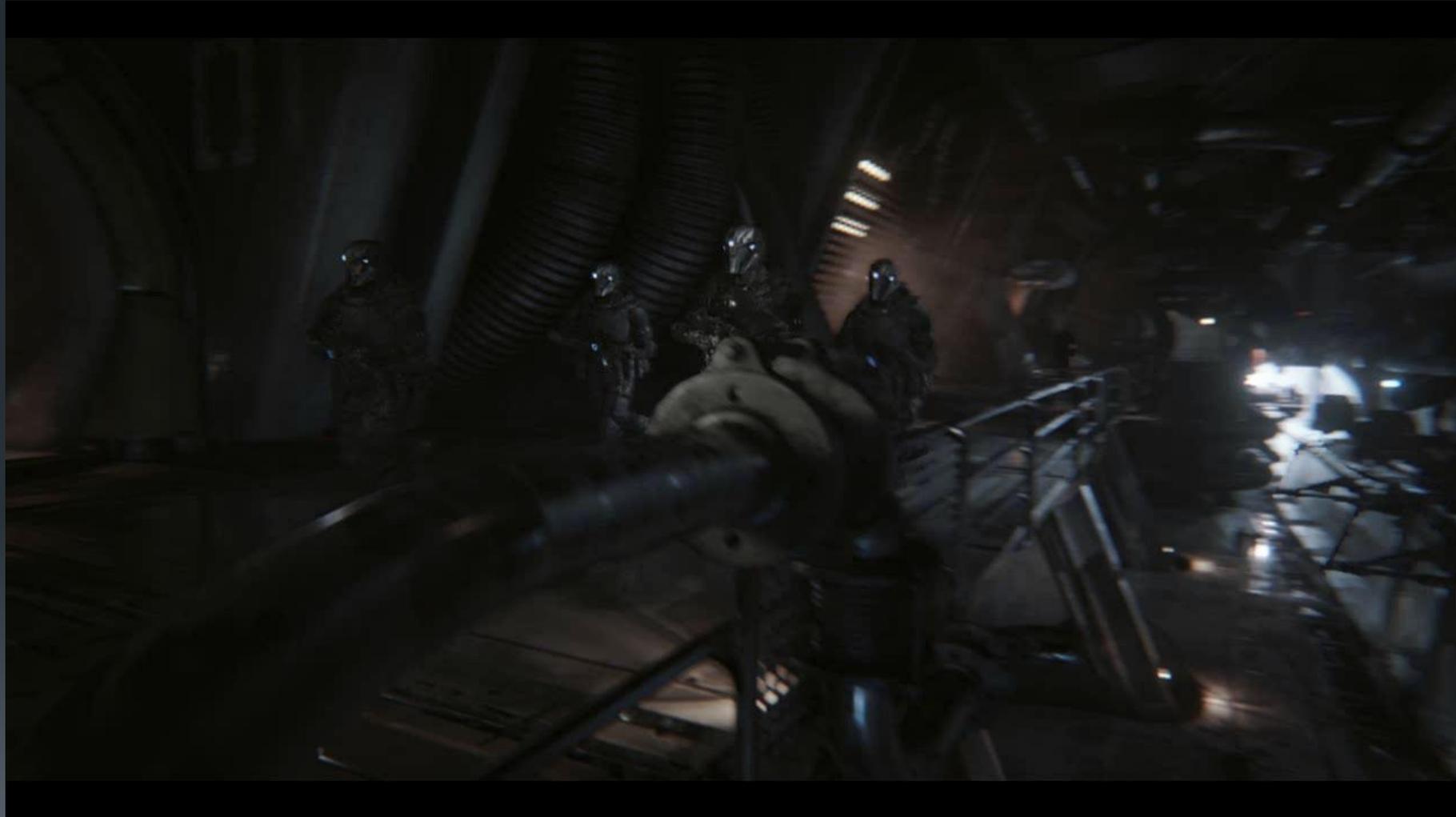
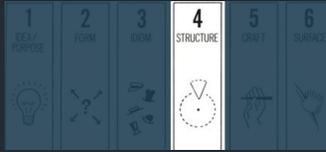
Some people don't have the imagination.

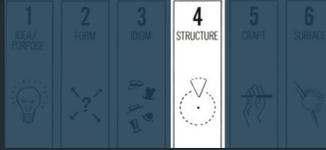
Don't skip prototyping.

Make accompanying visuals to fill in the blanks.

Make the temp art appealing. Keep it simple and not distracting.

Storyboarding is a form of prototyping





Team dynamics

- Keep the prototype teams small.
- Use generalists who are excited by tinkering and redoing things over and over.
- There is definitely a personality type for it. Not everyone is suited for prototyping.



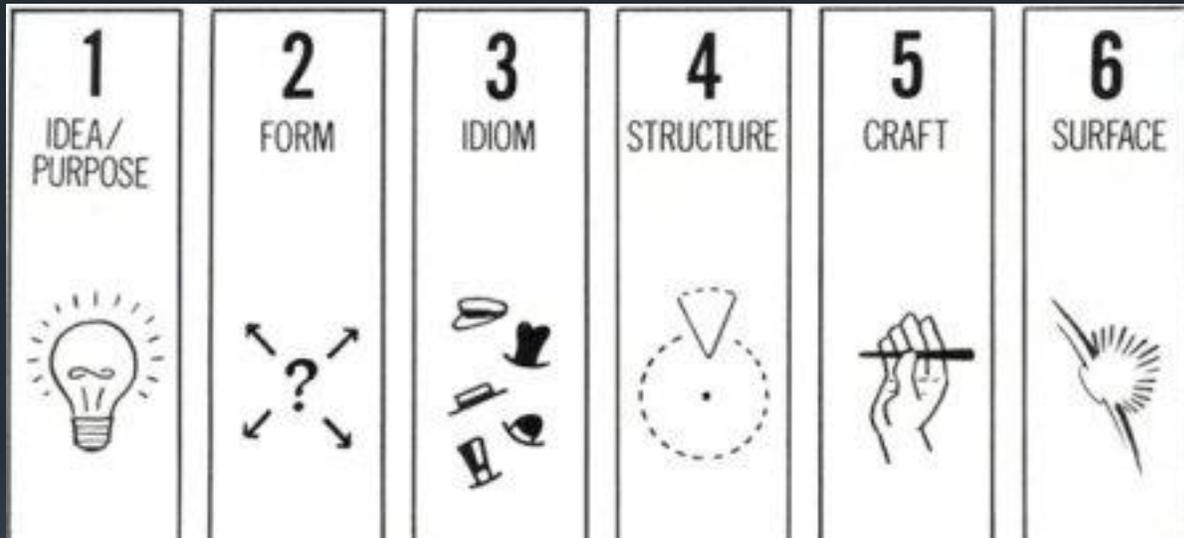
What is gained?

- Production costs of prototyped pipelines. Hiring needs.
- What engine features need to be added
- Any additional software/middleware needs?
- Define style guide
- Do you have enough information to jump into production without too much unforeseen risks?
- What are the stretch goals?

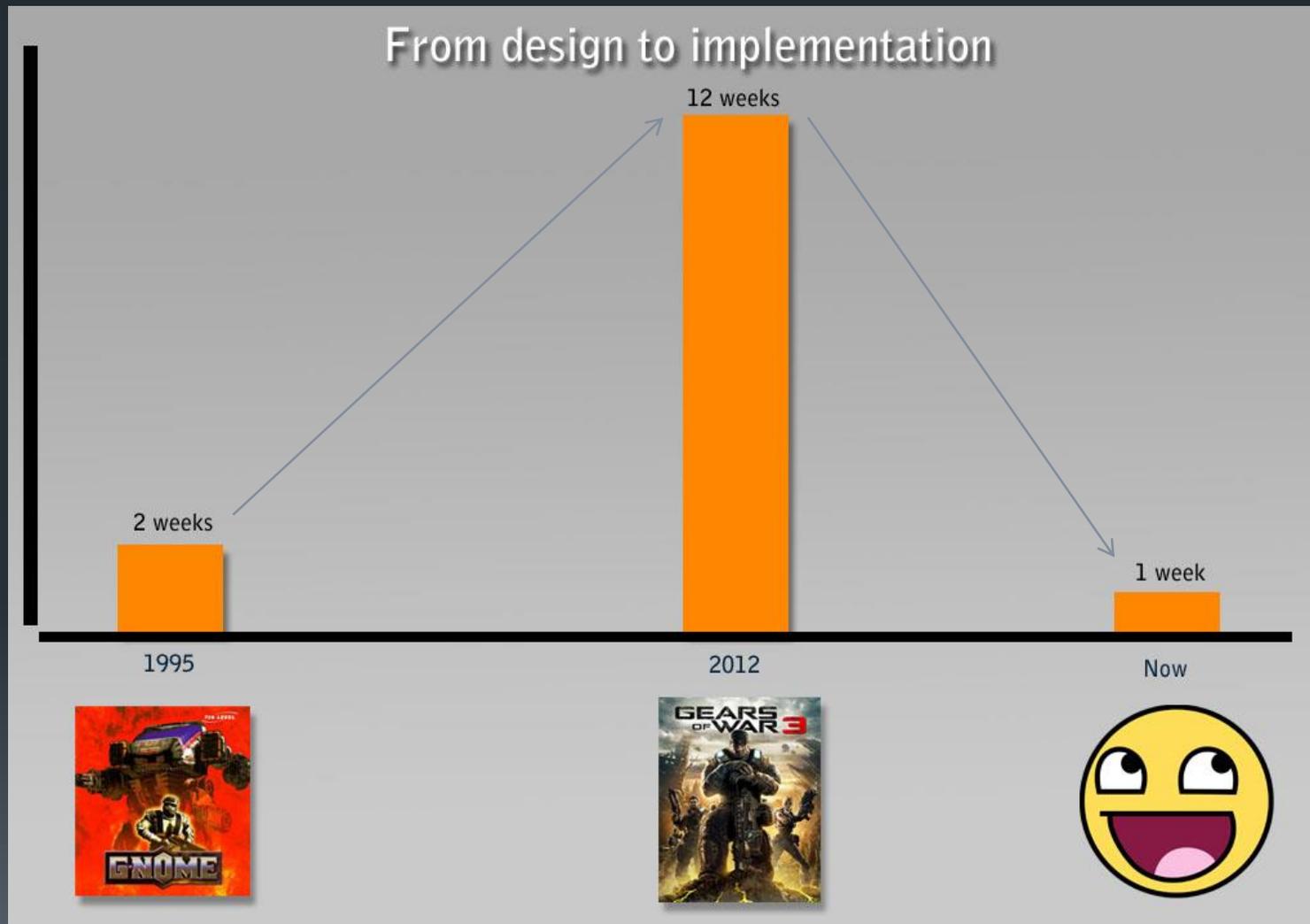
Great things I gained!

- Mocap director/actor has a basis to work from. (ie what needs to be communicated most during that captured motion?)
- Feedback could be more focused and clear.
- Asset creation was less like the telephone game and more like a teleconference

Things you gain!

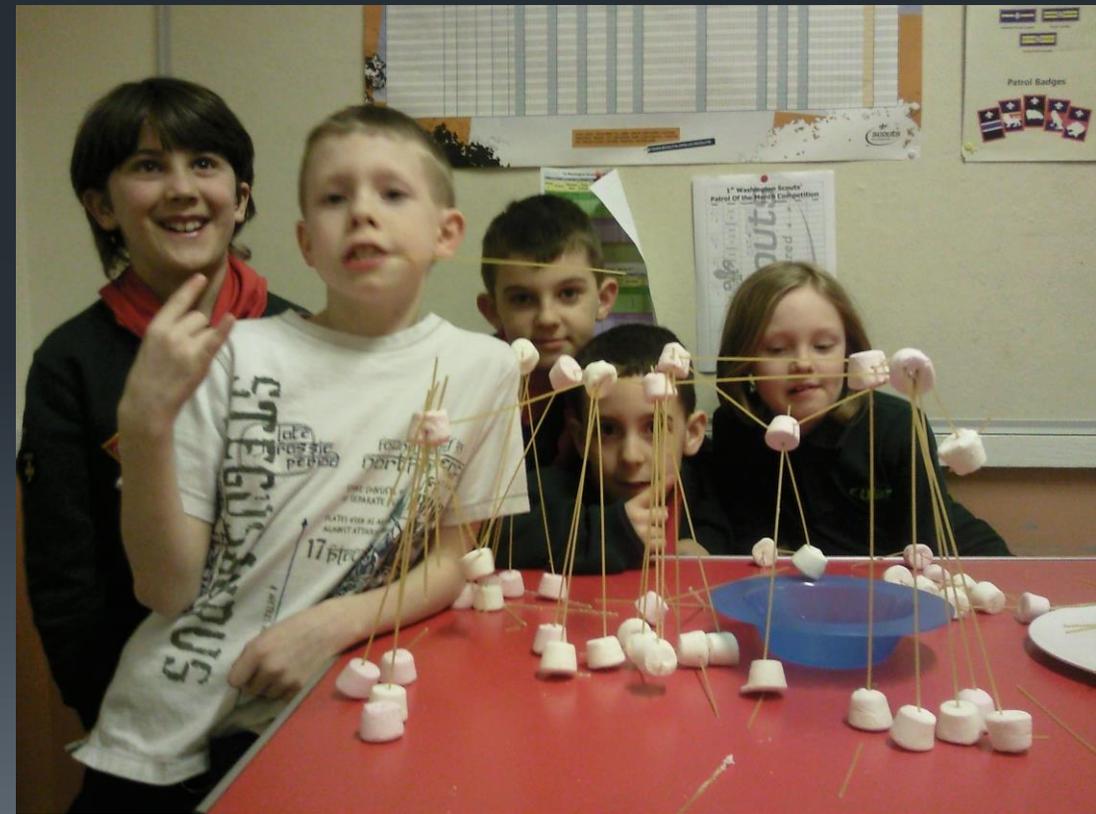
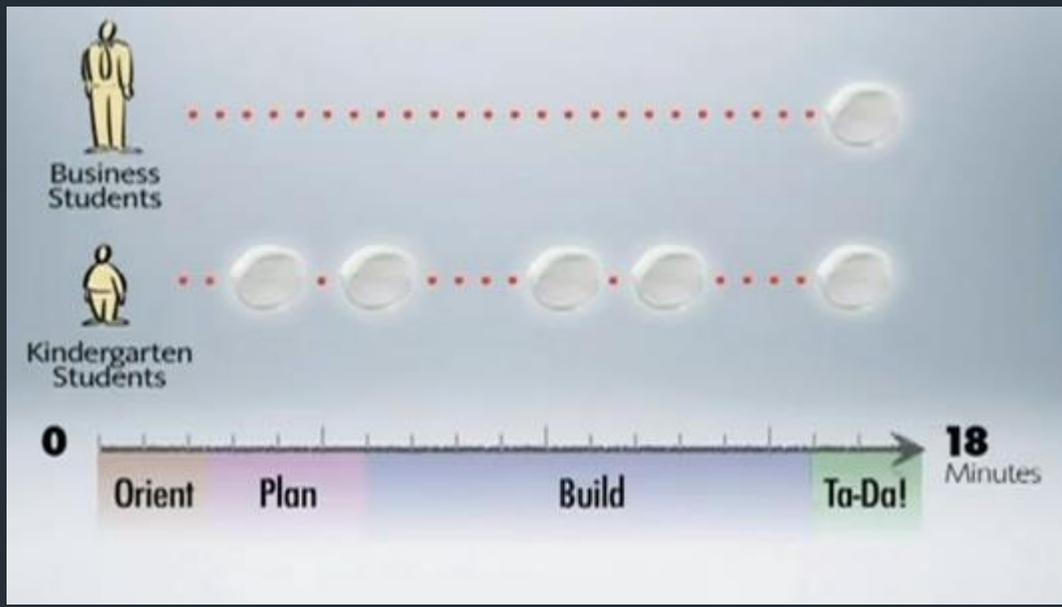


Back to our roots.



Final Ta Da!!!

1	2	3	4	5	6
IDEA/PURPOSE	FORM	DETAILED	STRUCTURE	DETAIL	SURFACE

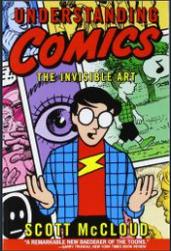


Thank You!!!!



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Special thanks to:



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<http://scottmcccloud.com/2-print/1-uc/>



Stone Librande
<http://stonetronix.com/>



Tom Wujec
http://marshmallowchallenge.com/TED_Talk.html



All the folks at Epic Games