

Games for Impact: Global Challenges, Local Initiatives

Constance Steinkuehler

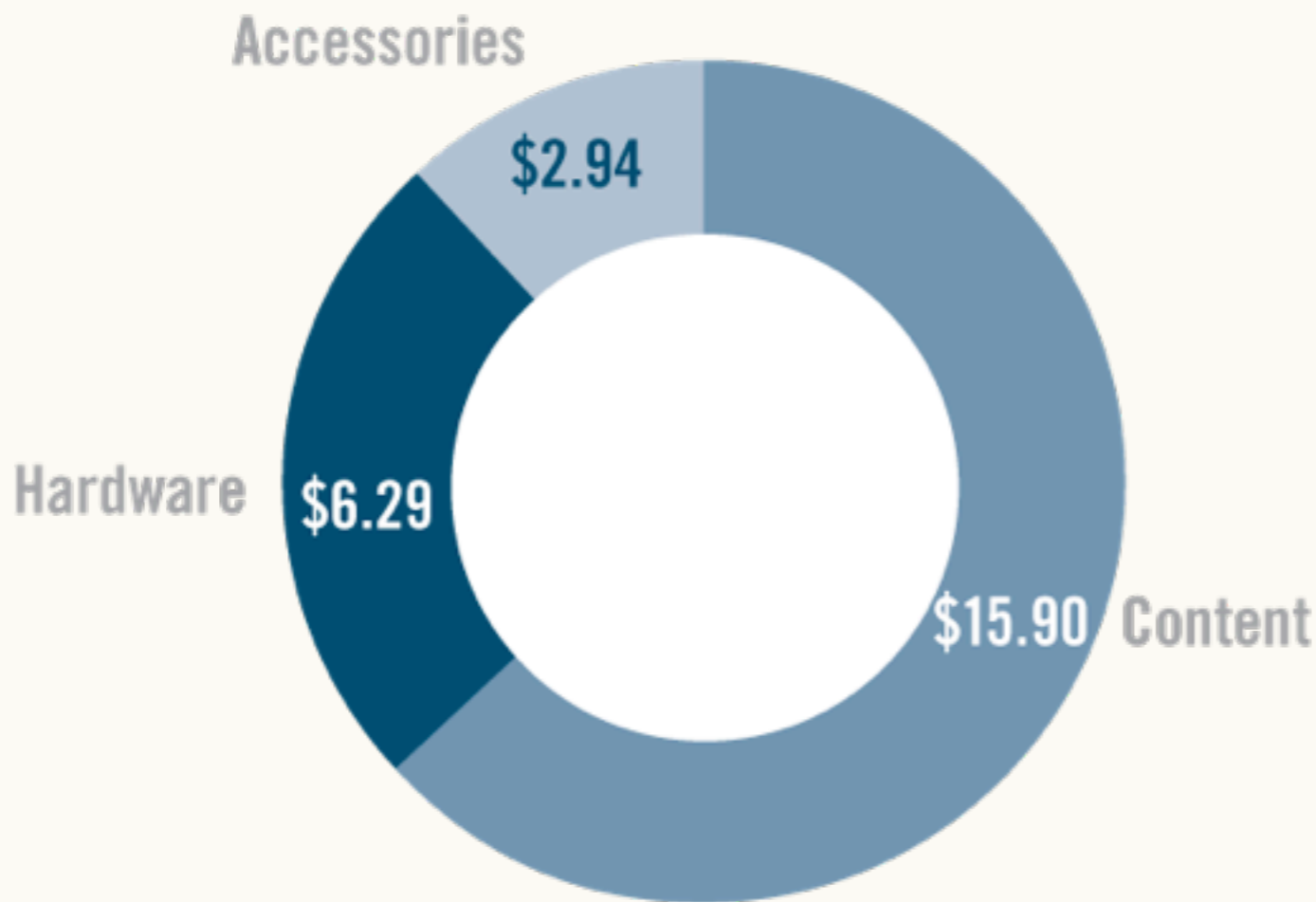
Games+Learning+Society (GLS) Institute
University of Wisconsin–Madison



Games are a vital part
of the 21st century US economy.

Total Consumer Spend on Games Industry 2010

DOLLARS IN BILLIONS



TOTAL:
\$25.1
BILLION

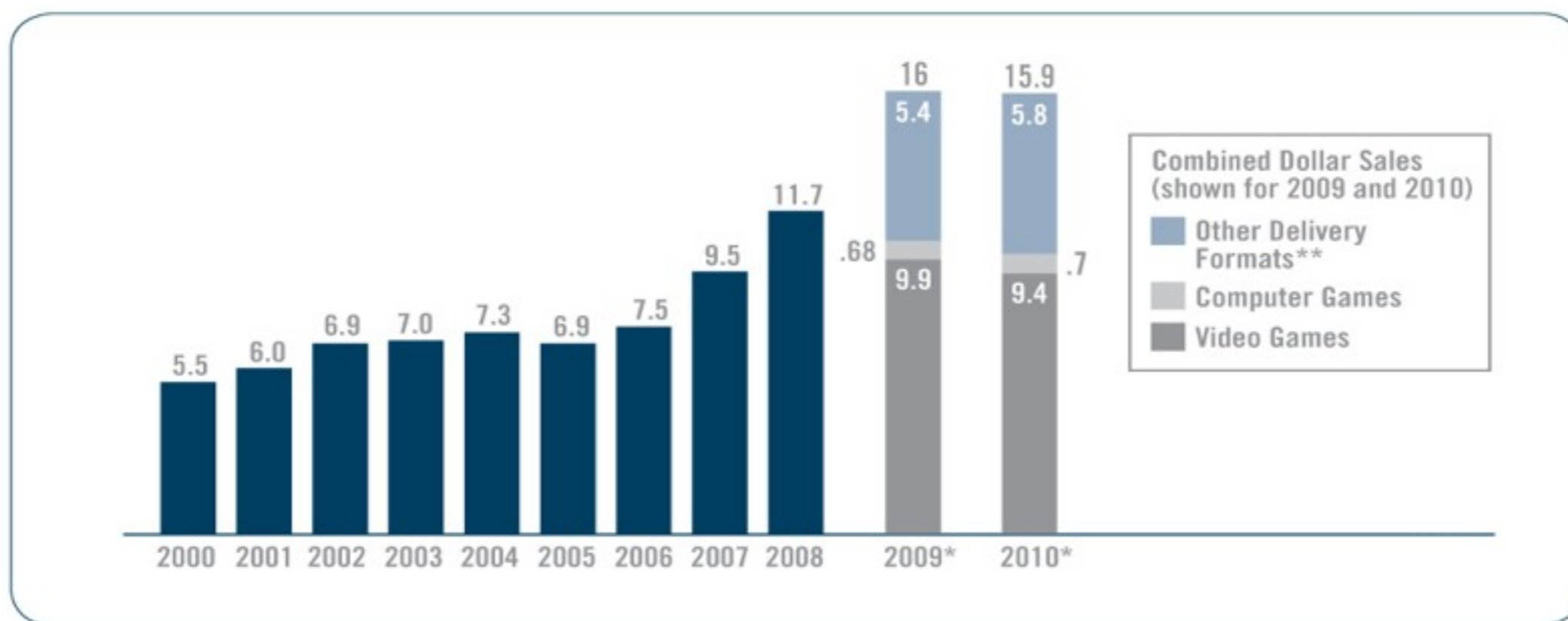
Source: The NPD Group/Games Industry: Total Consumer Spend

Videogames:	\$25.1 B
Music industry:	\$15.0 B
Movie Box Office:	\$10.5 B

One of the fastest growing industries in the US economy.

U.S. Computer and Video Game **DOLLAR** Sales Growth

DOLLARS IN BILLIONS



Source: The NPD Group/Retail Tracking Service; Games Industry: Total Consumer Spend

* Figures include total consumer spend

** Other delivery formats include subscriptions, digital full games, digital add-on content, mobile apps, social network gaming, and other physical delivery. 2000-2008 figures are sales of new physical content at retail exclusively.

Source: ESA 2010

**From 2005 to 2010, the entire
US GDP grew by about 16%.**

**Games industry revenue
more than doubled.**

White House interest in games?

Games for Learning



“I’m calling for investments in... educational software that’s **as compelling as the best video game**. I want you guys to be stuck on a video game that’s teaching you something other than just blowing something up.”

Barak Obama
TechBoston
March 8, 2011

Games for Health



“I can attest to **Dance, Dance Revolution**. We got it at Camp David, and it will make you sweat. And it is addictive in a very good way. The President still can't do it.”

Michelle Obama
Feb 20, 2010

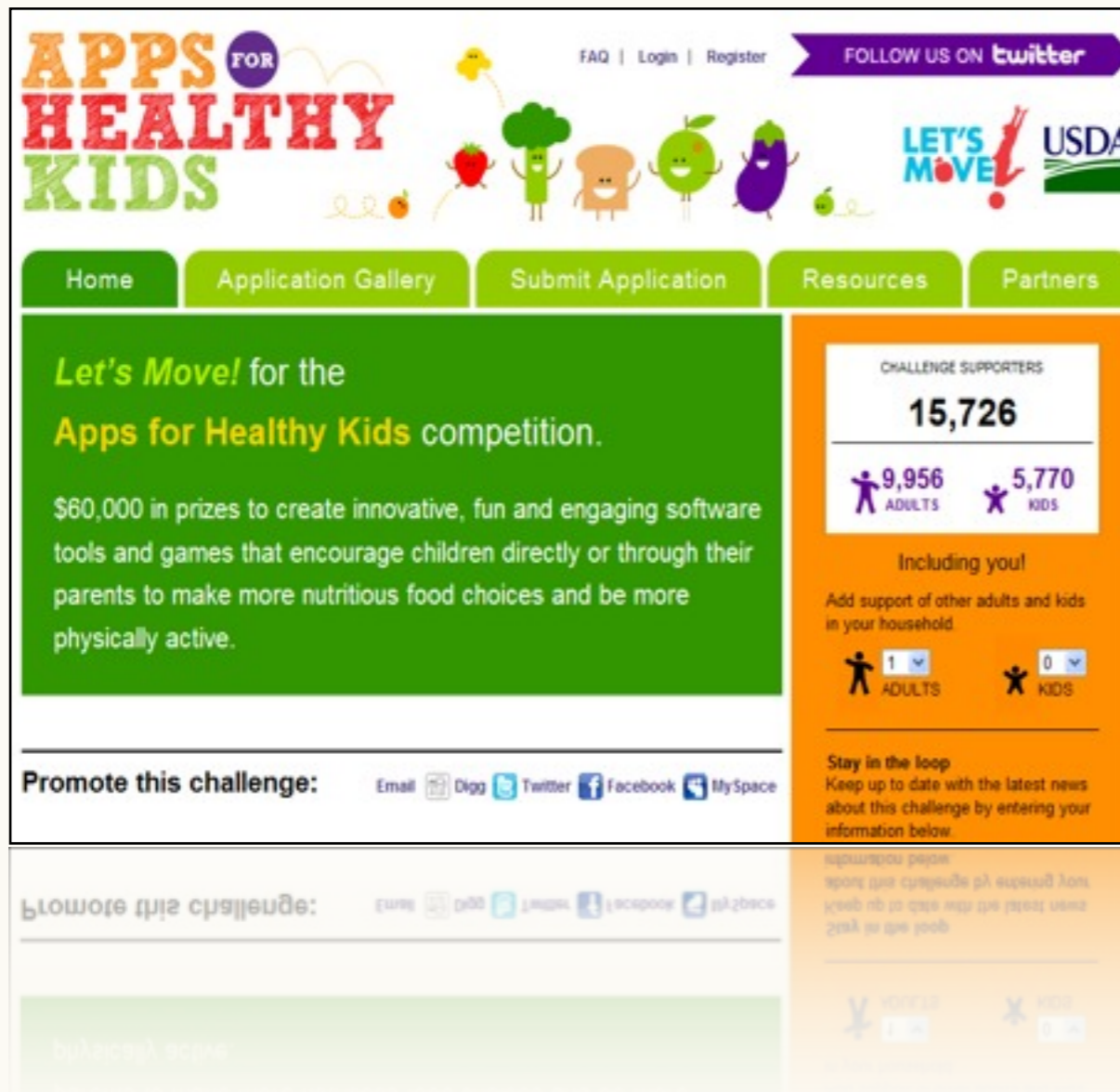
Games for Health



“I can attest to **Dance, Dance Revolution**. We got it at Camp David, and it will make you sweat. And it is addictive in a very good way. The President still can't do it.”

Michelle Obama
Feb 20, 2010

Games for Health



“The Apps for Healthy Kids competition **challenges... kid-savvy innovators across the country to build games that inspire and empower kids to get active and eat healthy.**”

Michelle Obama
March 11, 2010

Obama's Innovation Strategy

Catalyze Breakthroughs for National Priorities

- Unleash a clean energy revolution
- Support advanced vehicle technology
- Drive breakthroughs in health IT
- Address “grand challenges” of 21st century

Promote Competitive Markets that Spur Productive Entrepreneurship

- Promote American exports
- Encourage high-growth & innovation-based entrepreneurship
- Support open capital markets that allocate resources to the most promising ideas
- Improve public sector innovation and support community innovation

Invest in the Building Blocks of American Innovation

- Educate the next gen with 21st century knowledge & skills while creating a world-class workforce
- Restore American leadership in fundamental research
- Build a leading physical infrastructure
- Develop an advanced information technology ecosystem

Source: President Obama's Innovation strategy, www.whitehouse.gov



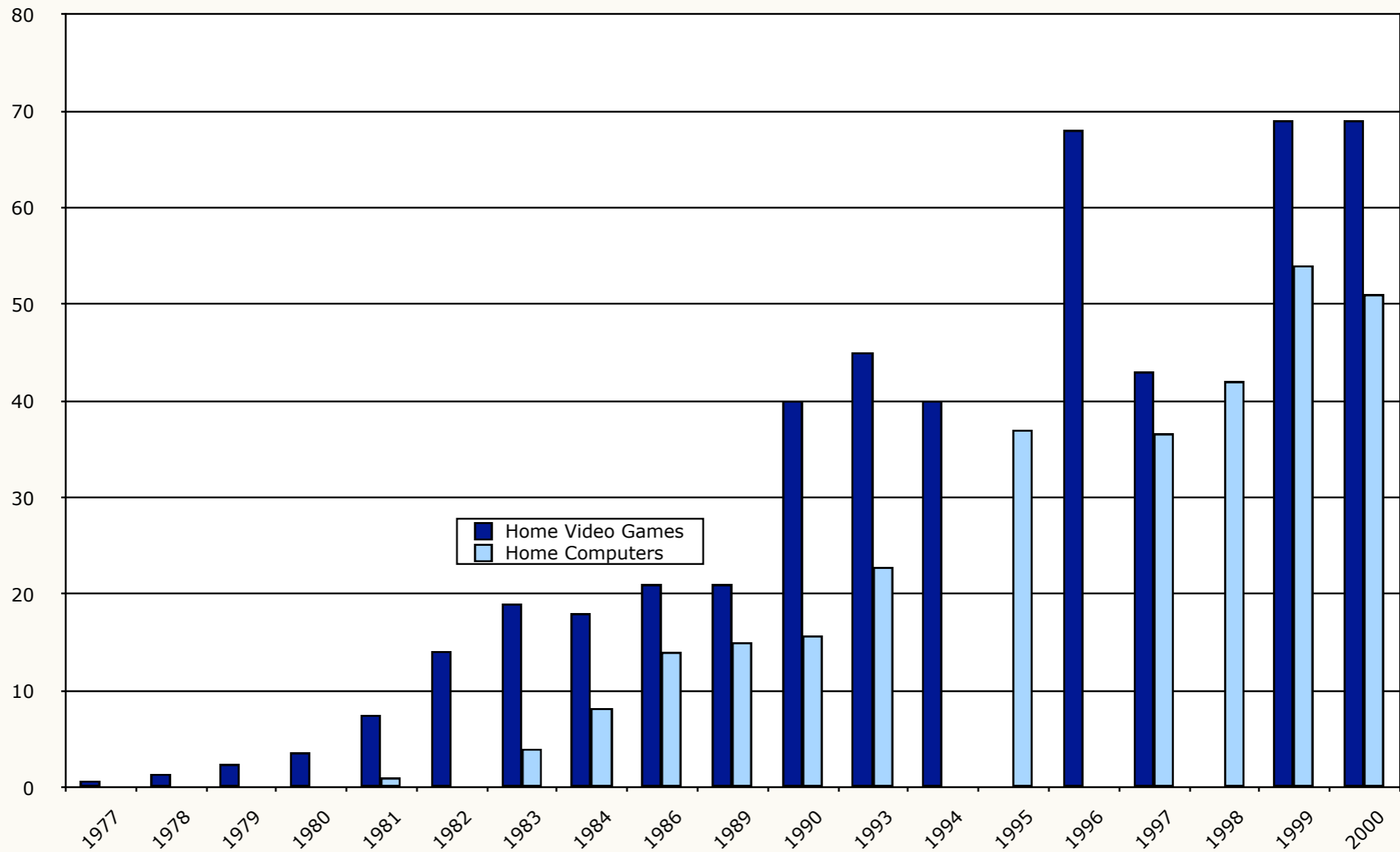
**White House
Office of Science and Technology Policy**

5

Important Affordances of Videogames

72% of American households

Videogames are a push technology.



Analog versus Digital Engagement Strategies



Rejeski



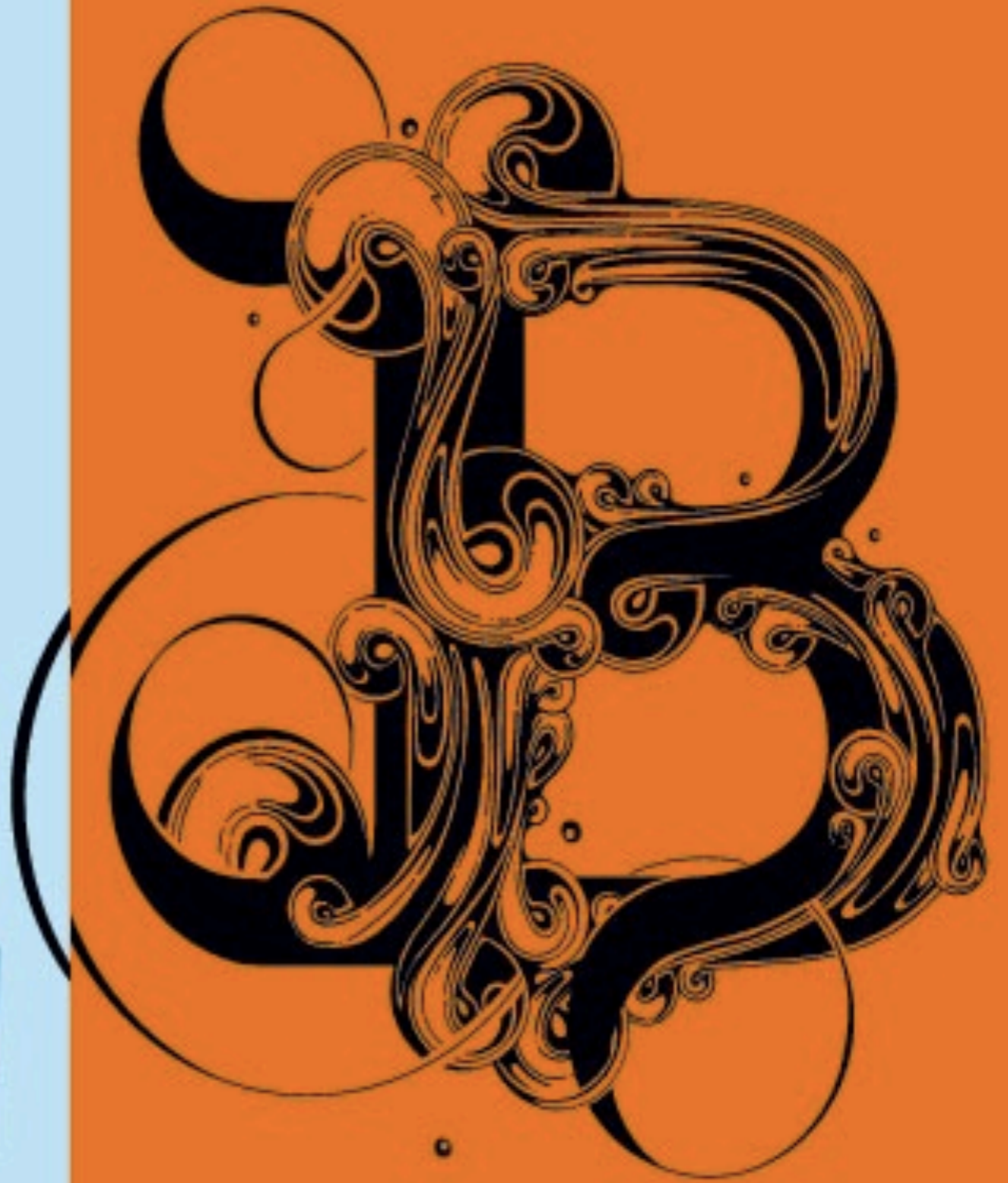


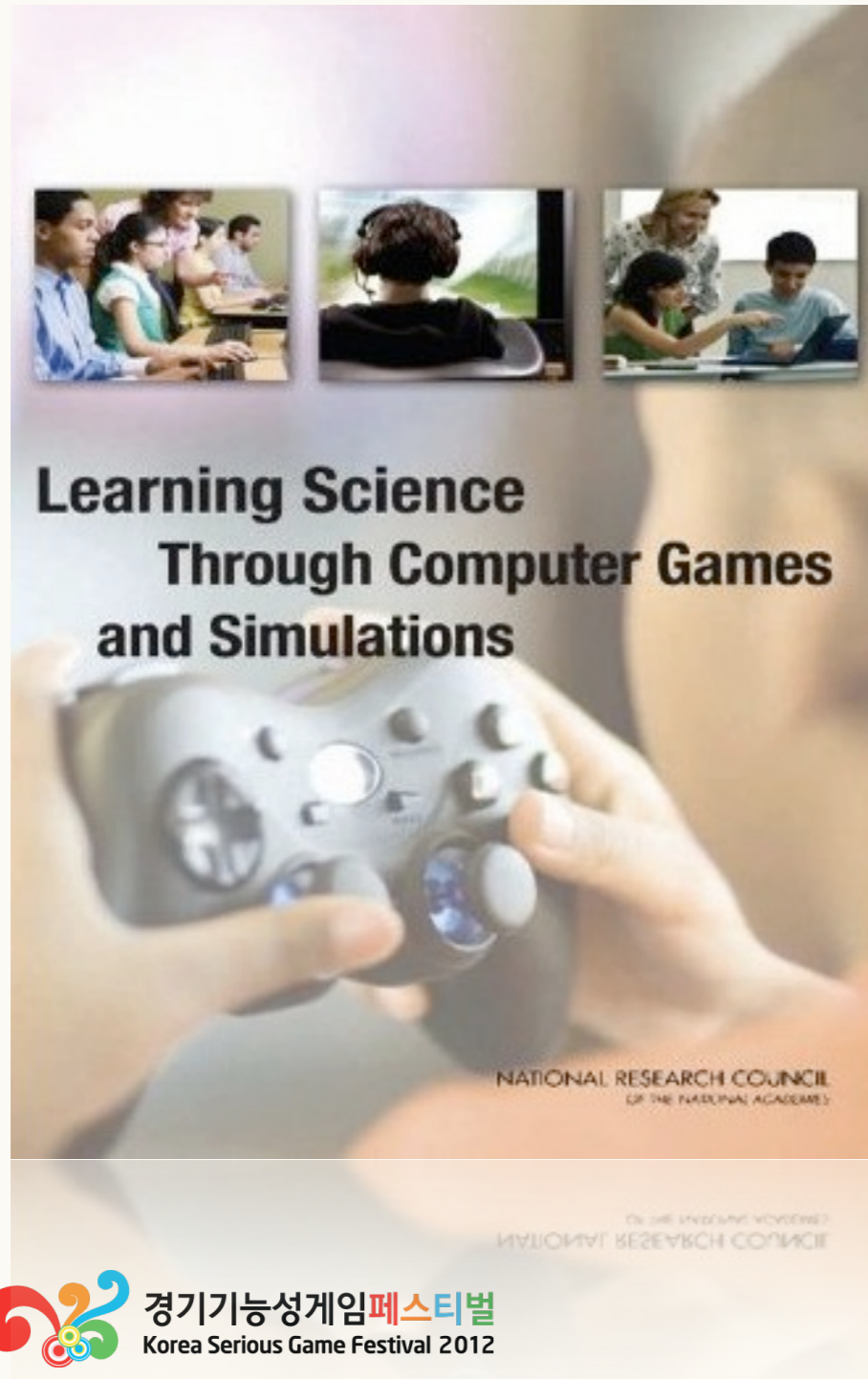
Photo: Spencer Higgins; Illustration: Si Scott

Impact on Cognition & Behavior

- FPS gameplay improves **visual acuity & attention**.
- Sims aid **systems understanding** in history & geography.
- Fandom discussion boards evidence **scientific reasoning**.
- FoldIt crowd sources **scientific discovery**.
- Exergaming increases **fitness**.
- Online gameplay aids **literacy** (digital and print).
- Health games improve **health behavior patterns**.
- Casual games **decrease stress & depression**.

(quick deep dive)

National Academy of Sciences Report



Many experts call for a **new approach to science education**, based in cognitive research. In this approach, teachers spark students' interest by engaging them in investigations, helping them to develop understanding of both science concepts and science processes, while maintaining motivation...

Computer simulations and games have great potential to catalyze this new approach.

NAS Committee on Science Learning: Computer Games, Simulations, and Education

NAS Report: Current State of Evidence

Goals for Informal Science Learning (NRC, 2009)*	Simulations	Games
Motivation	moderate evidence	emerging but inconclusive
Conceptual Understanding	promising evidence	emerging but inconclusive
Science Process Skills & Understanding Nature of	inconclusive	inconclusive
Scientific Discourse	inconclusive	inconclusive
Identity	inconclusive	inconclusive

It's not just science.

- Literacy
- Mathematics
- Statistical Reasoning
- Computational Reasoning
- Systems reasoning
- Resource management
- Environmental Activism
- Social Studies
- Civic Participation
- Maker Movement
- Language Arts
- Foreign Language
- Health & Nutrition
- Stress & Mental Well-being

Some example games for impact.



Rox



ReMISSION™

Pull Mode

Rank: 119 (soloist) Score: 9133
123: Grand Challenge 7

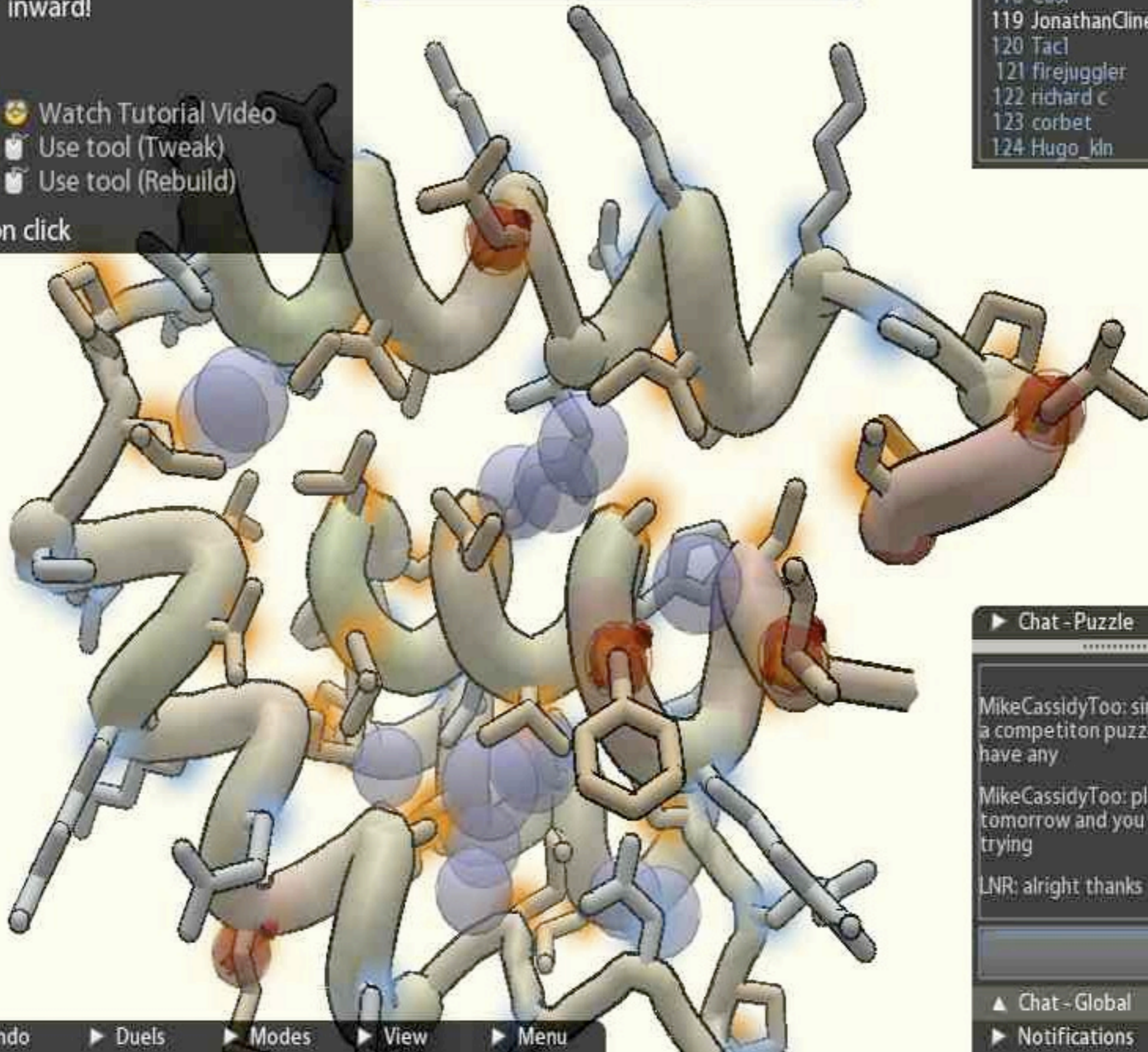
▶ Group Competition
▼ Soloist Competition

117	autumndays	-	9141
118	Cosi	-	9137
119	JonathanCline	9133	9133
120	Tacl	-	9131
121	firejuggler	-	9131
122	richard c	-	9130
123	corbet	-	9127
124	Hugo_kln	-	9126

This hydrophobic sidechain is exposed. It should point inward!

- ☹ Watch Tutorial Video
- 🛠 Use tool (Tweak)
- 🛠 Use tool (Rebuild)

✕ Focus view on click



▶ Chat - Puzzle ⓘ ✕ auto show

MikeCassidyToo: since you have not played a competition puzzle you probably dont have any

MikeCassidyToo: play 123 it will dose tomorrow and you will get some points fro trying

LNR: alright thanks

Send

▶ Chat - Global ⓘ ✕ auto show

▶ Notifications ✕ auto show

Foldit



P R E S I D E N T I A L
ACTIVE LIFESTYLE
AWARD

A program of the President's Council on Fitness, Sports and Nutrition

Presented to

Date

*In recognition of commitment to regular physical activity
and pursuit of a healthy lifestyle.*

A stylized signature in blue ink, appearing to be "Barack Obama", written over a dotted line.

President of the United States

SAMPLE





PORTAL 2


Moby
Games



Journey

Three example business cases.



A photograph of Justice Sandra Day O'Connor, an elderly woman with white hair wearing a teal button-down shirt and dark pants, standing outdoors with a group of students. She is smiling and has her right hand on the shoulder of a young man in a dark blue t-shirt. Other students in white and dark blue shirts are visible in the background. The scene appears to be at a school event.

“Knowledge of our system of government is not handed down through the gene pool.... The habits of citizenship must be learned.” Justice Sandra Day O’Connor

First, there was Our Courts



Mission: Preserve judicial independence by educating tomorrow's voters today

Included:

Argument Wars

Do I Have a Right?

Supreme Decision



iCivics Mission

As Our Courts, they discovered:

- Reaching children directly proved difficult.
- Reaching children through school proved much more effective and efficient.
- But... an exclusive focus on courts limited their reach within schools

Thus, they expanded their mission.





Do I Have a Right?

In *Do I Have A Right?*, you'll run your own firm of lawyers who specialize in constitutional law.

[Play Now!](#)

Executive Command

Ever wanted to be President for a day? In *Executive Command*, you can be President for four years!

[Play Now!](#)

Supreme Decision

Ever wondered how the Supreme Court really works? In *Supreme Decision*, you help cast the deciding vote.

[Play Now!](#)

Branches of Power

Do you like running things? *Branches of Power* allows you to do something that no one else can: control all three branches of government!

[Play Now!](#)

LawCraft

Want to make some laws? You can in *LawCraft*, where you play a member of Congress from the state of your choice.

[Play Now!](#)

The most comprehensive free civics curriculum in the US

- 70 lesson plans organized in 13 topical units
- Includes 16 games covering the three branches of government, civic duties, & civic engagement
- Collectively played over 5 million times
- Example Title: *Do I Have a Right?* played over 1.5 million times, now ported to iPad

Engaging readings with built-in active participation

Easy to grade assessments for teachers


Fun and creative activities for students

Anatomy of the Constitution

Name: _____

Creating the President: Article II

Article II of the Constitution describes the job of the executive branch. The president heads this branch, which includes the vice president, the cabinet, and many civilian and military employees. Article II describes who qualifies to be the president, what powers the office has, and what happens if a president misbehaves! It also explains the Electoral College, which is the process of how the president is selected.




Presidential Powers

- Act as the commander-in-chief of the armed forces
- Maintain a cabinet of advisors who run the 14 executive departments like the State Department and the Treasury
- Grant pardons in all federal criminal offenses, and reprieves (postpone punishments like executions)
- Negotiate treaties with other countries
- Appoint ambassadors, Supreme Court Justices and federal court judges, and Cabinet members
- Make a State of the Union address to Congress
- Represent the United States when dealing with foreign countries
- Make sure that laws are carried out (executed)

Creating the Courts: Article III

Here come the judges! Article III creates the judicial branch. The judicial branch has the job of interpreting the laws they mean.

Article III is the shortest of the first three articles. It only creates one court—the Supreme Court. Federal courts are created by Congress. Federal judges are appointed and given terms that last until they are removed for bad behavior. Article III gives different kinds of cases the Supreme Court and federal courts can hear. It also guarantees trial by jury in criminal court and the crime of treason is...



The U.S. Supreme Court in Washington, DC

Who Said It? First, match the quote about working in government to the correct article that describes the powers of this branch.


Floor debate [on a bill] is an exhilarating experience and important duty. *Carolyn Cheeks Kilpatrick, D-NE*

The presidency has many problems, but boredom is the least of them. *Richard Nixon, R-CA*

We apply not to...

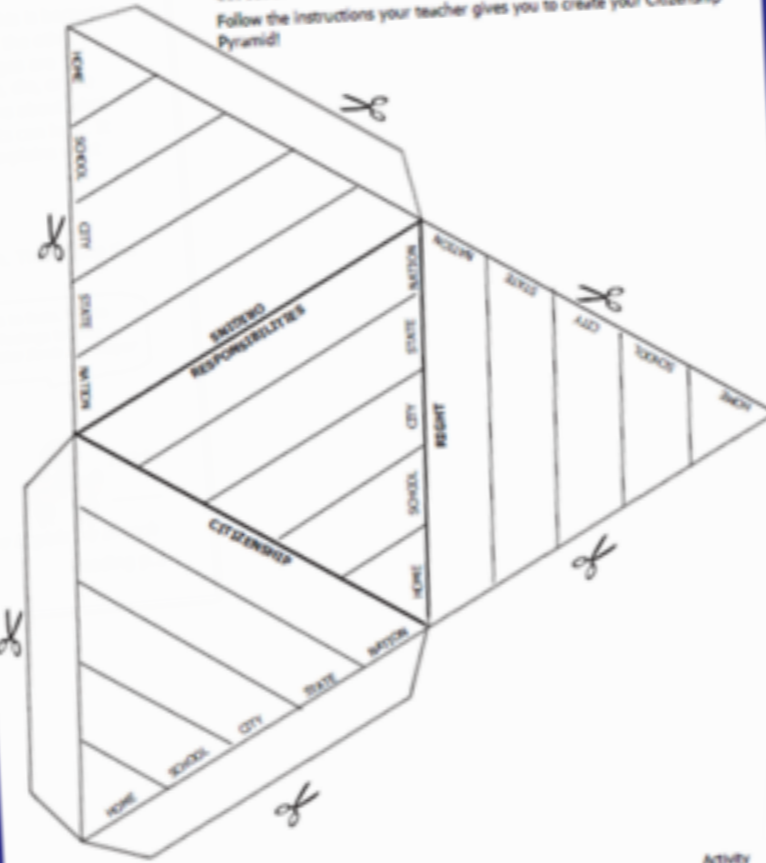

Article _____
The Executive Branch

Article _____
The Judicial Branch



Citizen Me

Follow your teacher's instructions to fill out your Citizenship Pyramid. Cut out on the OUTSIDE line, all the way around... Follow the instructions your teacher gives you to create your Citizenship Pyramid!

Activity


The Electoral Process

Name: _____

Vocabulary. Match the definitions to the words they describe.

- when a candidate states that he or she is planning to run for office
- party meetings where candidates are selected and the platform is created
- someone that represents the party views of a state at a national convention
- the person that is chosen to run as a party's candidate in the national election
- given by the people selected to run for President and Vice President at the end of a national convention
- a collection of all the efforts a candidate makes to win an election


A) delegate
B) nominee
C) campaign
D) declare
E) convention
F) acceptance speech



Something's Missing! Fill in the paragraph with the correct terms in the word box.



Electoral College popular vote absolute majority electors

On Election Day, the American public elects candidates into government offices. The first set of results is the tally of the _____, or count of all the votes cast. The results in each state determines the support of _____, that meet and participate in the _____. In order to win the presidency, a candidate must have 270 out of a total of 538 electoral votes. This number is half of 538 (269) plus one, which is considered a(n) _____.



Doops! A candidate made a 'to do' list for his run for the presidency, but dropped it and everything got mixed up. Help him out by numbering the items so the list can be put in the right order.

- Attend the national convention for my party! Hopefully, I will be nominated.
- Declare my candidacy! I want to be the President, and hope my party will support me!
- Secure money for my campaign leading up to the national election, make speeches, show up on tv, send out mailings, attend rallies.
- Hang out with family and friends to await the results of the popular vote on Election Day.
- Wait for the results of the Electoral College and prepare my acceptance speech for inauguration!
- Campaign for the primary and caucus season by making speeches and talking to voters.

Review

iCivics: Strategy

Funding

- At startup, angel gifts and philanthropic grants
- Since incorporation, key funding sources are individual/family foundations, corporate philanthropy

Marketing

- Teacher word-of-mouth drives the majority of audience
- Google search ads target educators, parents, youth
- Strategic Partners: BrainPop, Boys & Girls Club

iCivics: Effectiveness

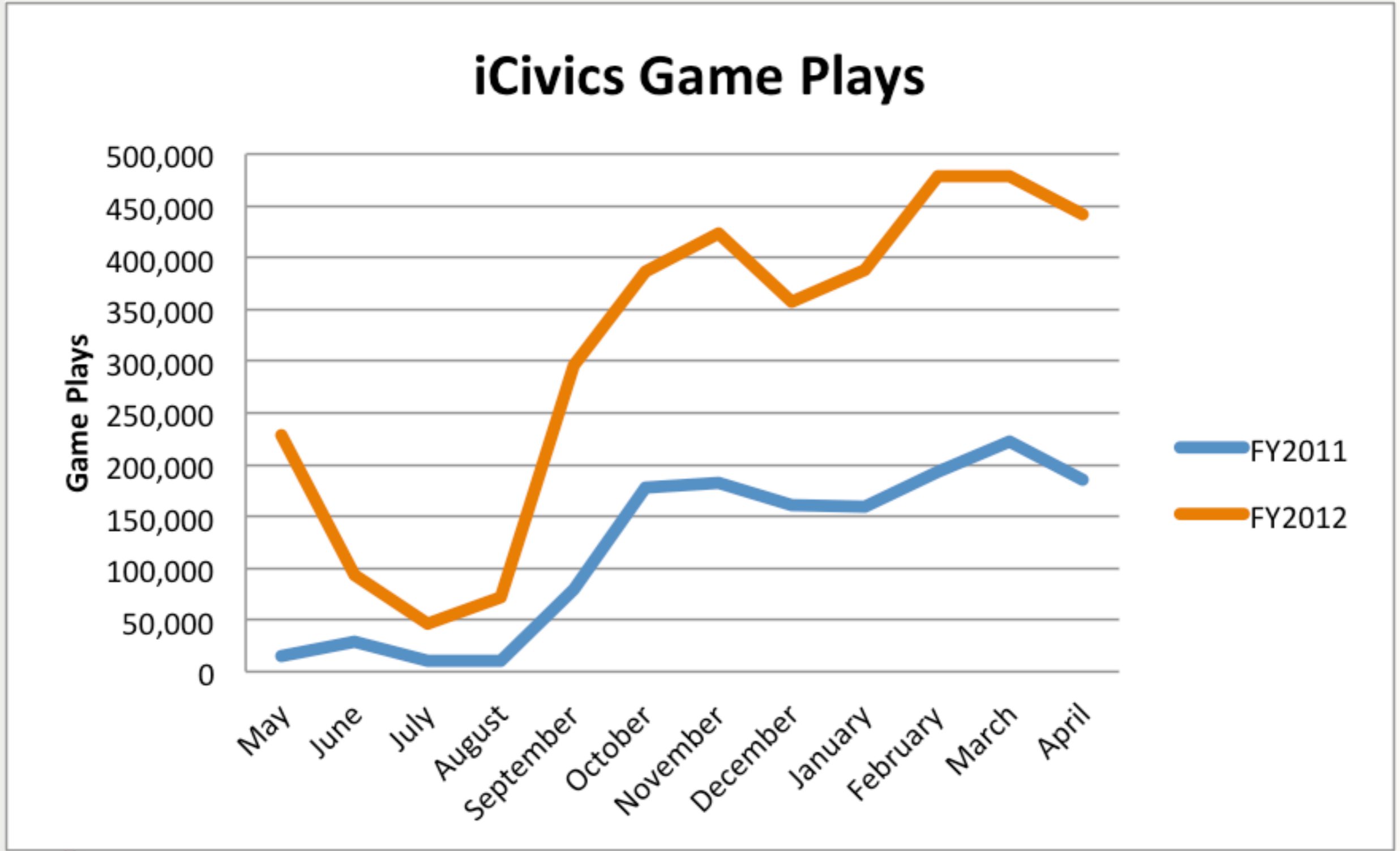
Learning

- After playing iCivics games, test scores increased by 14%
- Games + lesson plans improved test scores by 46%
- Equal benefit across all ethnicities, genders, SES classes

Engagement

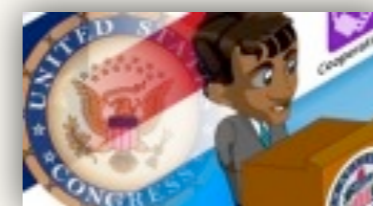
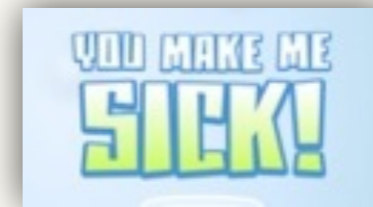
- 57% of students play *Do I Have a Right?* at home
- Peer reviewed research shows gains in civic dispositions
- Teachers report high engagement

Over 1M youth across all 50 states.





Filament Games



Filament Impact

iCivics By the Numbers

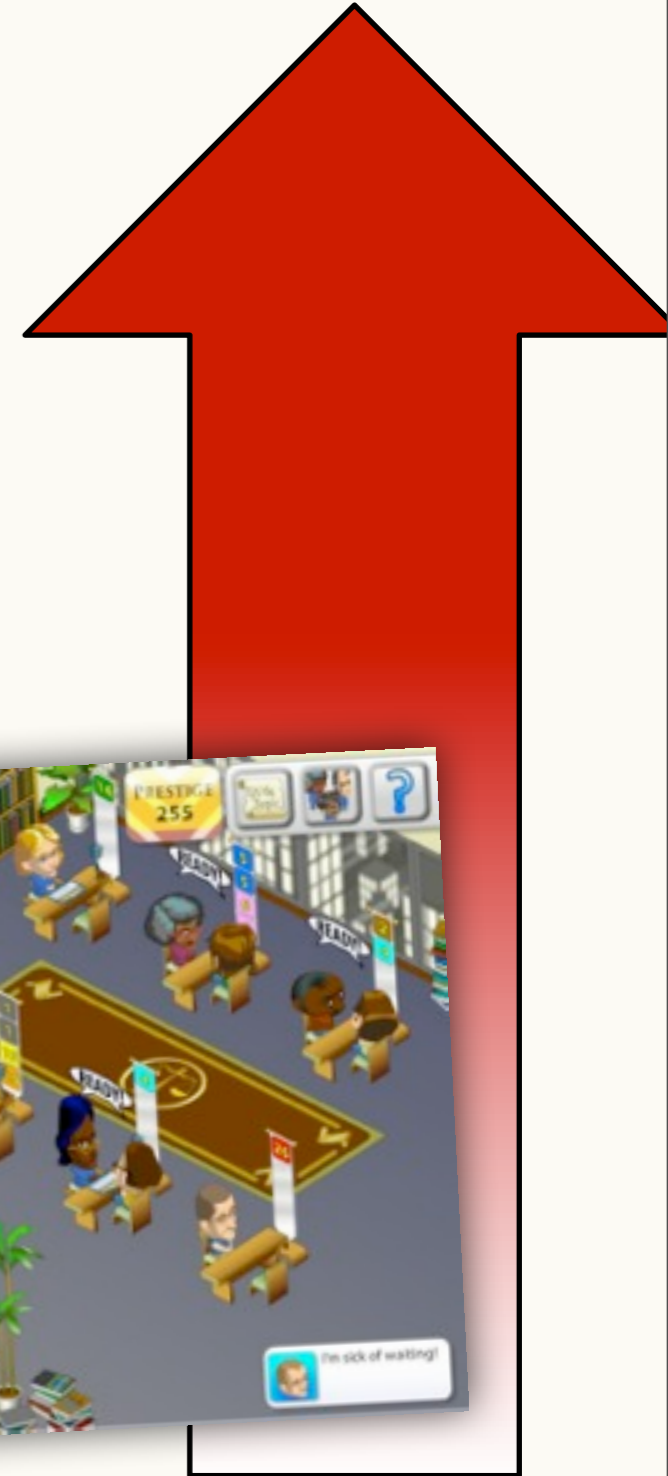
Total Game Plays	5,537,430
Total User Accounts	157,189
States using iCivics	50

Filament Impact

46% pre/post-test delta

57% played again @ home

85% reported better understanding



Filament Recognition



E - Line
MEDIA

E-Line Media

E-Line

Foundations™

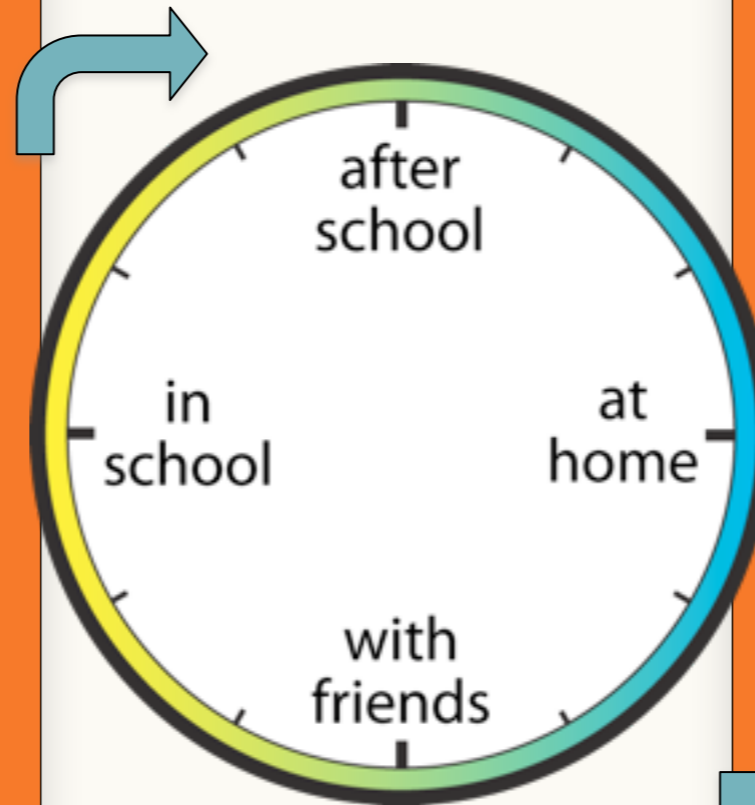
Curriculum-driven learning



Increase relevancy and engagement with traditional subject areas

Connect curriculum to interests

Research based



**kids choose,
teachers use,
parents approve**

E-Line

Pathways™

Interest-driven Learning



Empower kids to learn & build skills around their natural interests

Connect interests to curriculum

Research based

Game Star Mechanic



Gamestar Platform

Play & Fix



Design



Publish & Review



Flexible Curriculum

LESSON 3: Balance
LOCATION: Computer Lab 1/2

At the end of this lesson students will be able to: Identify the balance of fun and challenge in games.

Gamestar Episode related to this lesson: First Quest - Episodes 5

Do Not Pass!
Create a game with barriers and obstacles that you have to get by in order to win (or move to the next level).
Creating puzzles for your player to solve is a powerful way to control progress through a game. Creating complex enemy movement patterns can create challenges too.

What's On For Today? Warm-up (10 minutes)

to be fun, it must also be challenging, students will balance the game in Gamestar Mechanic.

Materials Needed: Projector and laptop or smartboard.

Feedback & Assessment

READING YOUR GAME'S CHART
This chart shows how many people start and finish each level of your game! You can think of it as a pipe: the skinnier the pipe gets, the harder it is to get through it!

If your chart looks like a **straight pipe**, it means that just about everyone who started your game finished it!
This might mean your game is really fun, but it also might mean it's too easy!

If your chart looks more like a **funnel**, it means that fewer and fewer people complete each level of the game.
This might mean your game gets harder over time, or maybe it gets more boring!

If your chart has a place where it **suddenly gets skinnier**, you have a level that a lot of people give up on!
That level might be too hard for most people, or maybe it's just too long!

YOUR REVIEW

RATING: ★★★★★

DIFFICULTY: ⚙️⚙️⚙️⚙️⚙️

REVIEW NOTES: Awesome! Played over 100 times before I finally beat it

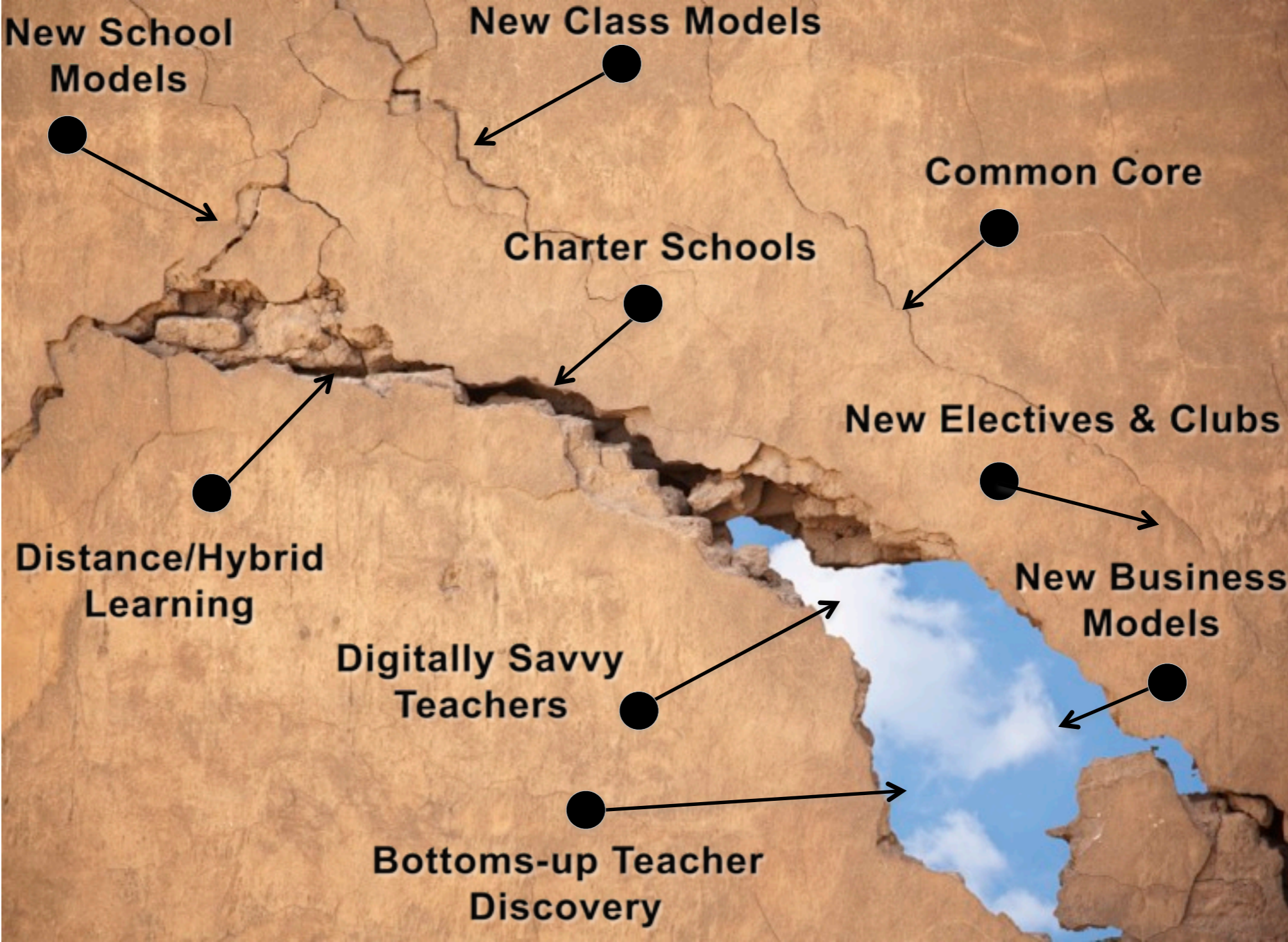
GAMEPLAY VISUALS

ADD A NOTE ABOUT: GAMEPLAY STORY VISUALS

Penetrating Schools



Finding the Cracks



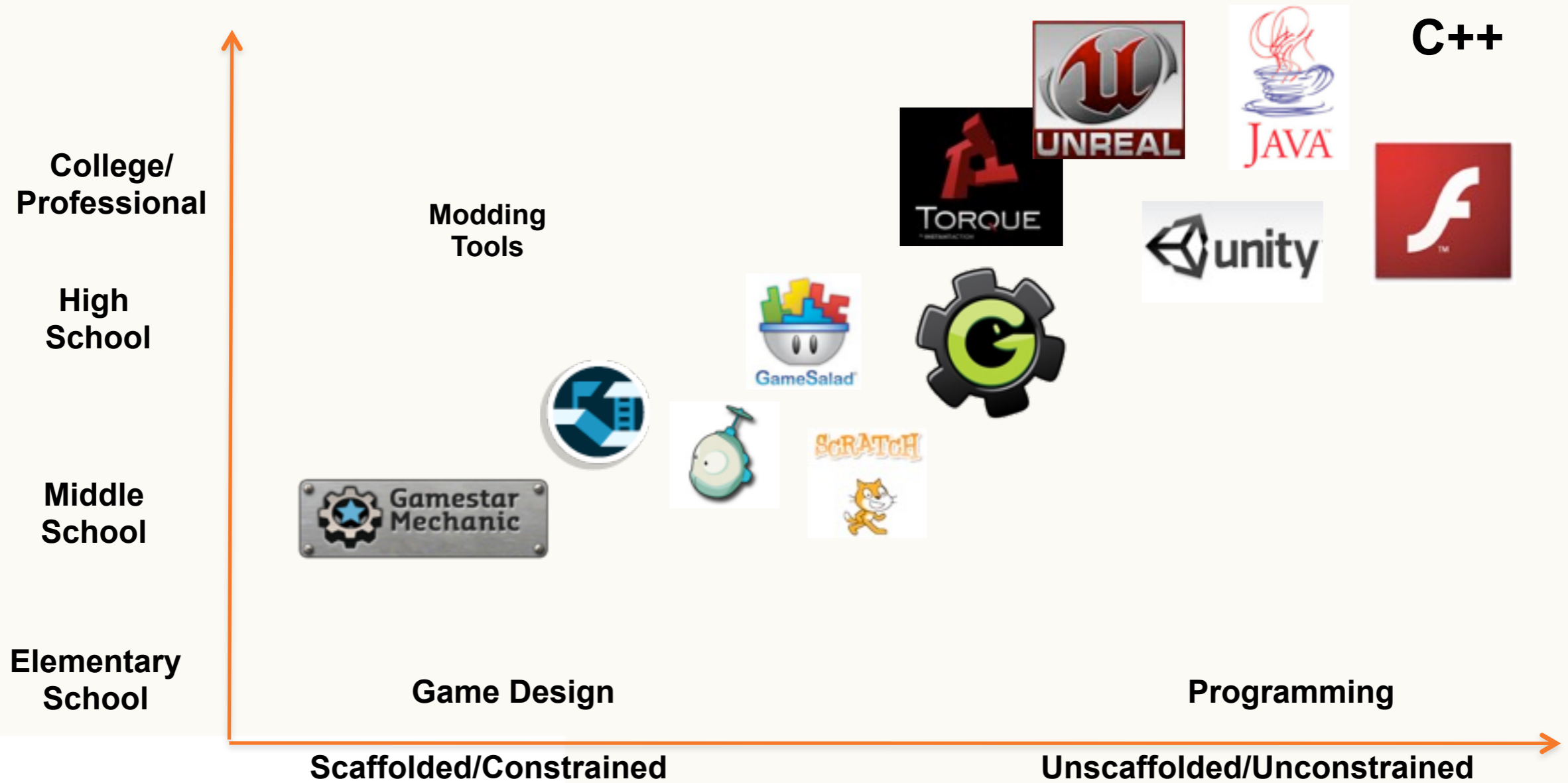
Momentum

1+ year since launch...

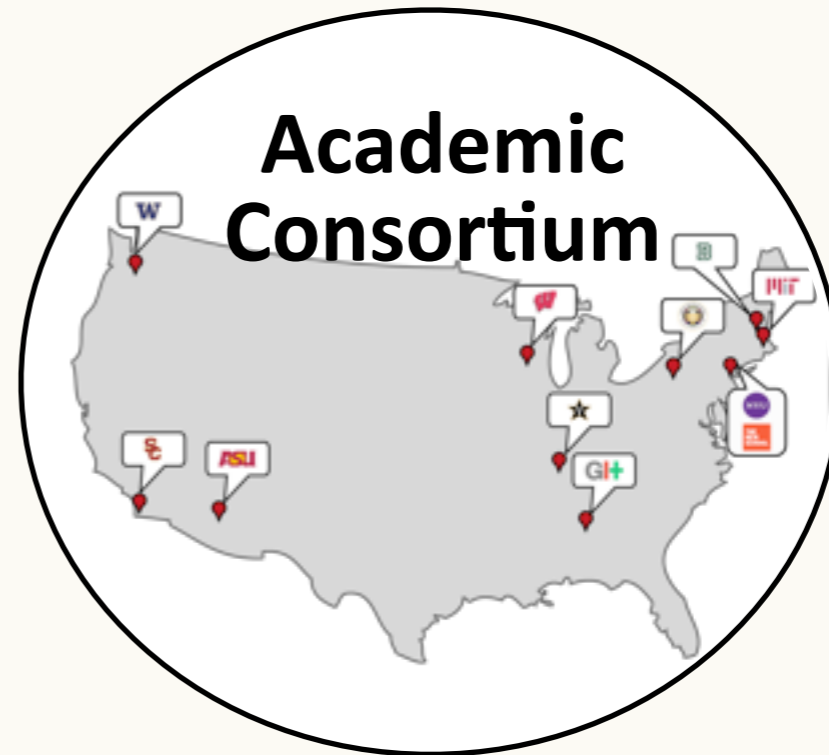
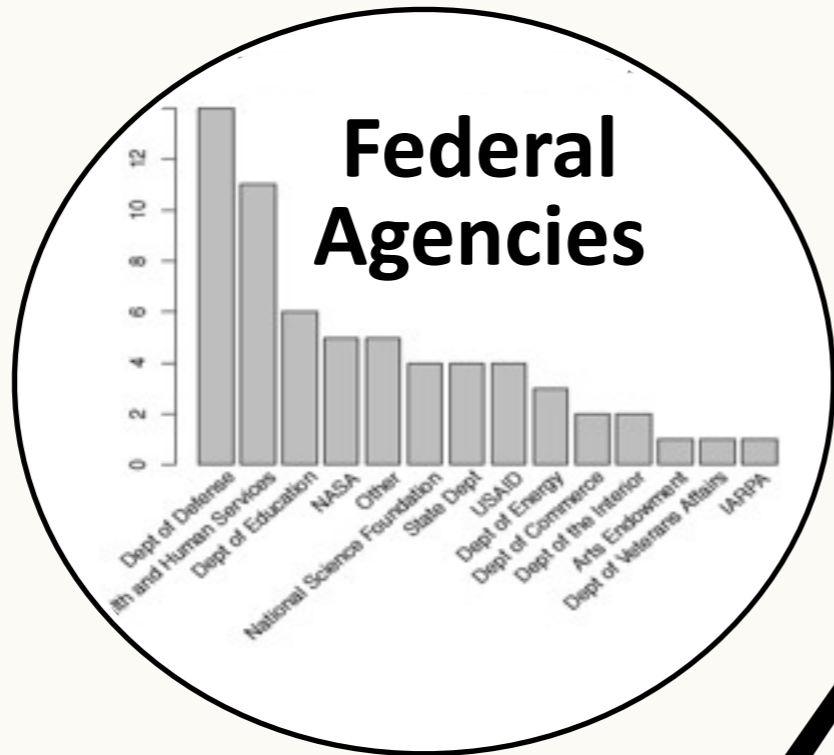
- Rapidly Growing Adoption
- 3000+ schools, after-school programs actively playing
- 200,000+ youth designed games published
- 5,000,000+ plays of youth created games in 100+ countries



Pathways & Partnerships



Creating the Innovation Ecosystem



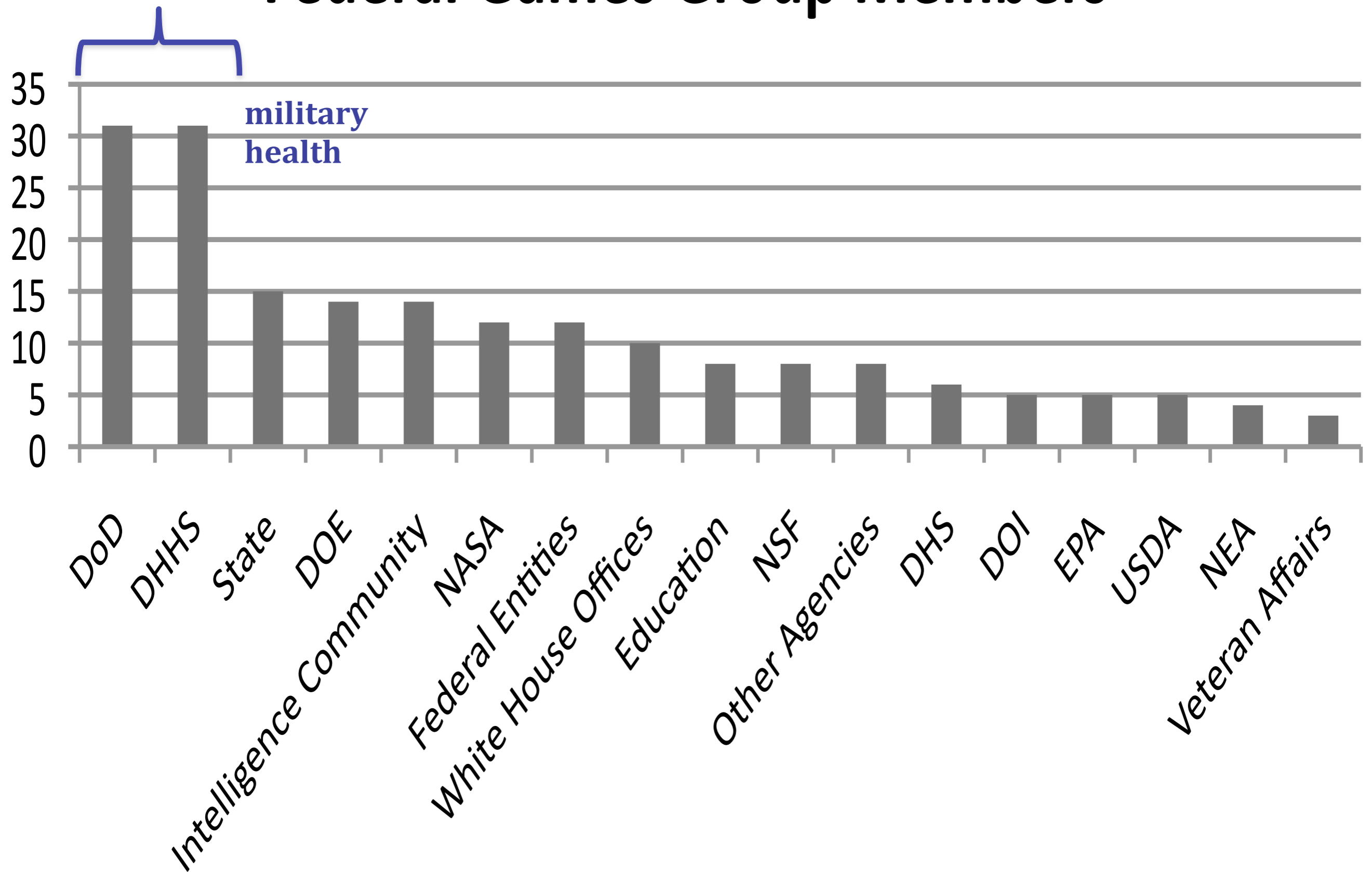
4



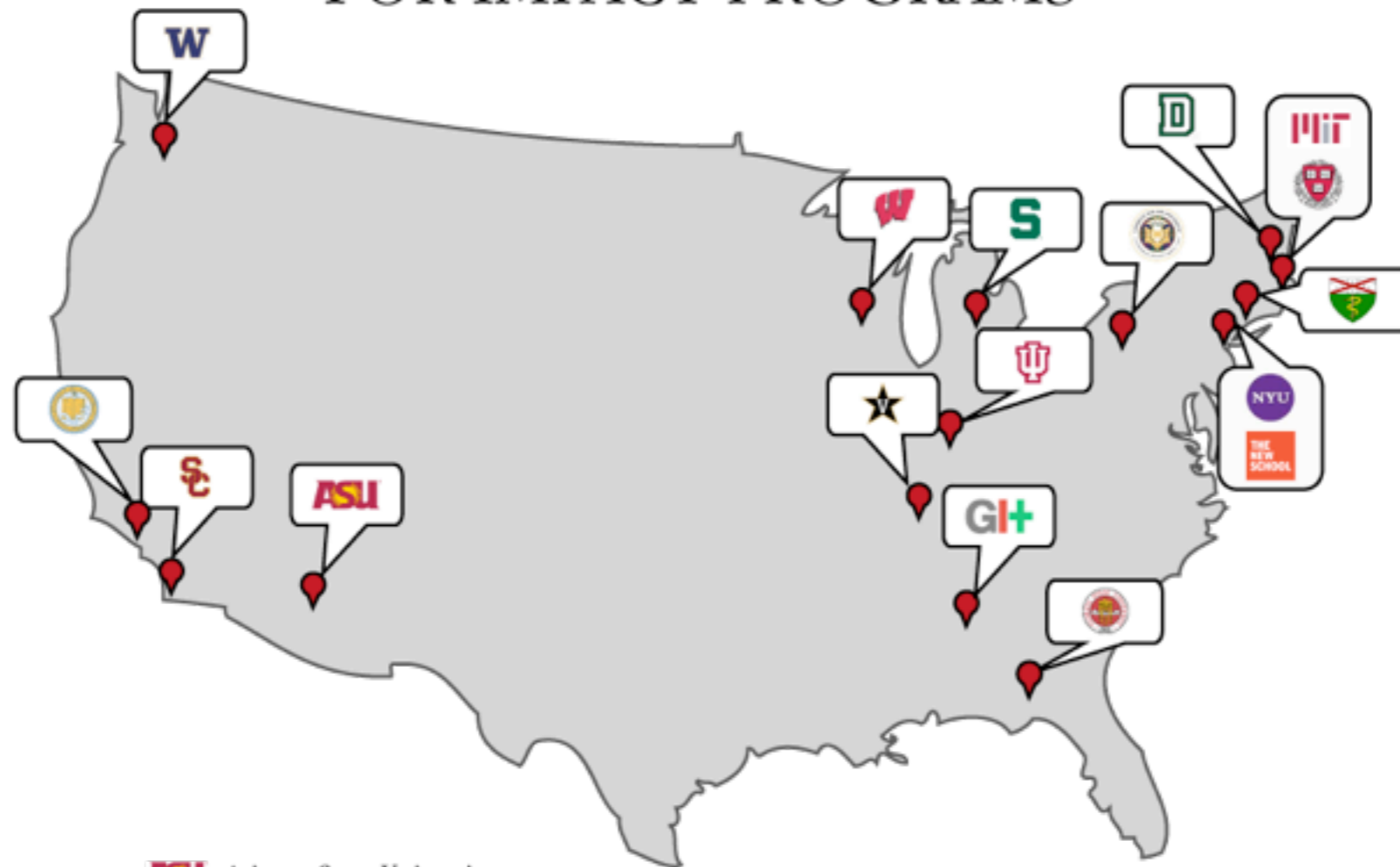
**1st Federal Games Guild convening
in November: 70+ attendees, 23 agencies.**

(current count: 191, 33+4)

Federal Games Group Members



UNIVERSITIES WITH GAMES FOR IMPACT PROGRAMS



-  Arizona State University
-  Carnegie Mellon University
-  Dartmouth College
-  Florida State University
-  Georgia Institute of Technology
-  Harvard University
-  Indiana University - Bloomington
-  Massachusetts Institute of Technology
-  Michigan State University

-  New York University
-  Parsons The New School for Design
-  University of California - Santa Barbara
-  University of Southern California
-  University of Washington - Seattle
-  University of Wisconsin - Madison
-  Vanderbilt University
-  Yale University School of Medicine

thank you.



constances@gmail.com
www.constances.org