



# District Game-based Learning Implementation Guide





Rebecca comes to school everyday disengaged, unfocused, and unwilling to socialize with other kids in class. She sits in the back of the classroom anxiously awaiting the end of the day. When she goes home she doesn't talk about the exciting things she learned at school because she doesn't find the lessons and activities all that exciting.

Do you have a student like Rebecca in your class? Maybe you have a few students like Rebecca in your district.

The problem isn't that she's not a smart student, the problem is that she isn't engaged with classroom content. We hear stories like Rebecca's a lot at Filament Games.

In a [July 2015 Tech and Learning article](#), former teacher fellow, Christine Marsh, shared a story about Diego, a disengaged student in one of her classes. Christine said, "He was bright but often unfocused, distracted and had difficulty socializing with other students. From the first day of incorporating the educational game, Cell Command, into my lessons, Diego was a changed student. He was on-task, ready at the first opportunity to begin playing. Not only was he focused on his own game play, but also he socialized with other students and offered tips and suggestions if they became stuck or frustrated."



*“ I just wanted to say Diego cannot stop talking about Cell Command! He used to just grunt when I'd ask how school was, now he can't stop talking about completing his missions to help save Jasmine from the pathogens!*

**DIEGO'S MOM**

Quite a few of our teacher allies have a student like Rebecca or Diego in their classes — bright students who struggle to engage with others and the content being presented by the teacher.

That's why we make learning games. Aside from the fact that research supports game-based learning as a teaching and assessment tool, well-designed learning games help students engage with classroom content and with others in class.

Kicking off a game-based learning initiative at a district-wide level can be overwhelming. Our goal with this eBook is to provide you with the tools and support you need to be able to help students in your district get the most out of their learning experience.

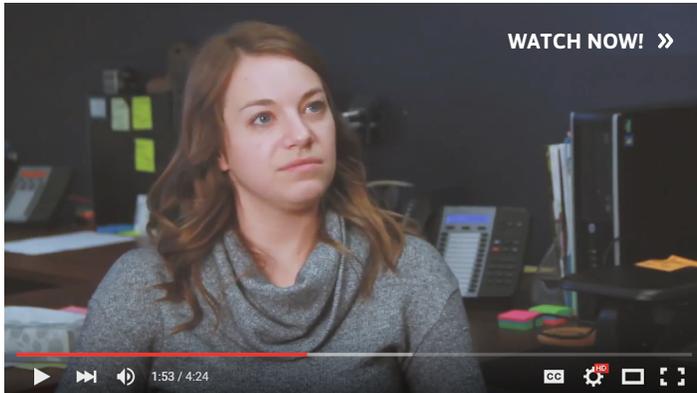
**- THE FILAMENT GAMES TEAM**

# What's Inside

<b>WHY GAME-BASED LEARNING?</b>	<b>5</b>
<b>HOW TO IMPLEMENT A GAME-BASED LEARNING PROGRAM</b>	<b>6</b>
<b>DISTRICT TECHNOLOGY PLAN: GAME-BASED LEARNING IMPLEMENTATION</b>	<b>7</b>
<b>GAME-BASED LEARNING IMPLEMENTATION WORKSHEET</b>	<b>9</b>
<b>IMPLEMENTATION TIMELINE WORKSHEET</b>	<b>11</b>
<b>SUCCESS STORY: SUN PRAIRIE SCHOOL DISTRICT'S IMPLEMENTATION</b>	<b>12</b>
<b>INTERVIEW: ST. ANN'S CATHOLIC SCHOOL'S IMPLEMENTATION</b>	<b>14</b>
<b>FUNDING</b>	<b>16</b>
<b>ALTERNATIVE TECH SOLUTIONS FOR GAME-BASED LEARNING</b>	<b>17</b>
<b>ADDITIONAL RESOURCES</b>	
<b>BACKYARD ENGINEERS CASE STUDY</b>	<b>19</b>
<b>FILAMENT GAMES GAME-BASED LEARNING PROGRAM</b>	<b>21</b>

# Why Game-based Learning?

The Joan Ganz Cooney Center and Columbia University are two examples of organizations that provide substantial evidence supporting the efficacy of using games in the classroom. Not only do games offer increased classroom engagement; they offer students opportunities to explore agency, identity, and systems thinking from the comfort of their own classrooms. More importantly, games give students the ability to experiment, fail, and try again.



Video: *Why Game-Based Learning?*

Interview with Michael Mades, Sun Prairie School District Director of Technology; Anne Larson, Sun Prairie School District Digital Learning Manager; Dave Ropa, 7th Grade Science Teacher Spring, Harbor Middle School.



“KIDS WHO PLAYED VIDEO GAMES FIVE OR MORE HOURS A WEEK DID BETTER IN SCHOOL & SUFFERED NO EMOTIONAL OR MENTAL HEALTH PROBLEMS.” [1]



“HIGH VIDEO GAME USAGE WAS ASSOCIATED WITH A 1.75 TIMES THE ODDS OF HIGH INTELLECTUAL FUNCTIONING AND 1.88 TIMES THE ODDS OF HIGH OVERALL SCHOOL COMPETENCE.” [1]

**47%**

OF TEACHERS REPORTED THAT LOW-PERFORMING STUDENTS RECEIVED THE GREATEST BENEFIT FROM GAMES IN THEIR CLASSROOMS. [2]

**55%**

SAID THAT LOWER-PERFORMING STUDENTS WERE MORE MOTIVATED WHEN PLAYING A GAME. [2]

**65%**

REPORTED THAT LOW-PERFORMING STUDENTS BECAME MORE ENGAGED WITH CONTENT OVERALL WHEN IT WAS PRESENTED IN THE FORM OF A GAME. [2]

*“ We can’t just tell [students] these things, we have to get them engaged and exploring and wanting to learn. When I have students come to me and say they went home and played the game again because they wanted to learn more or because it was fun, I feel like I’ve done my job and made smarter kids.*

**DAVE ROPA, 7TH GRADE SCIENCE TEACHER, SPRING HARBOR MIDDLE SCHOOL**

[1] <http://www.gamesandlearning.org/2016/03/10/new-research-finds-video-games-may-boost-academics-dont-affect-mental-health/>

[2] <http://www.gamesandlearning.org/2014/06/09/teachers-on-using-games-in-class/>

# How to Implement a Game-based Learning Program

Every school or district that implements a game-based learning program looks a little different. After all, each district has a different number of schools, varying technology access, and unique strategic goals. However, they all have one thing in common: making game-based learning a focus in their district technology plan.

As with any learning initiative, there's no "one size fits all" approach to game-based learning. When beginning your game-based learning journey, start by thinking about the technology access that you have and what you hope to get out of the implementation. Each program will offer different tools for administrators and educators. Some programs offer teacher and district dashboards that include information and real-time progress reports. There are also programs that offer free standards-based curriculum and activities that educators can use to create a more well-rounded gameplay experience for the classroom. Taking into account the district's strategic direction will help you select the best program for your students and educators.

We've created an outline with helpful tips and considerations that will guide you through your game-based learning program search. Use this outline to inform your thinking as you complete the **Game-based Learning Implementation Worksheet** and **Timeline** documents in the next section.



# District Technology Plan: Game-Based Learning Implementation

This guide is not meant to replace your current technology plan, but to supplement it with considerations and recommendations when introducing game-based learning in your district.

## MISSION

- Does your district have a mission or an educational technology mission?

## TEAM

- Who are the members of your team that will help rollout this initiative at a district level?
- Is there support staff, including educators, principals, department leads, or project managers who will help kickstart this initiative at individual sites?

## GOALS

What are the goals you are looking to accomplish for your district by using game-based learning? Sample goals include:

- *Academic Success, Curriculum, and Achievement*
  - » Games should meet learners at any aptitude to allow every student the opportunity to learn through play, use critical thinking, and demonstrate problem-solving.
  - » Students should be provided the opportunity to replicate real-world problems through gameplay in a safe, simulated, and engaging environment.
  - » Games, as often as possible, should contain elements of the Universal Design for Learning to allow learners of any background the opportunity to learn and play.
- *Real-world Applications and Global Citizenship*
  - » The game-based learning program should immerse students in subject matter, cultures, careers, and extracurricular opportunities through gameplay, design, and development that would otherwise not be available.
- *Professional Development*
  - » Educators should be provided a supportive environment through professional development courses on utilizing games in the classroom and district technology.
  - » Educators who are interested in game-based learning beyond using games in the classroom should be provided professional development courses on coding, game design, and development.

## TECHNOLOGY RESOURCES

- What kind of technology can you utilize for this initiative?
  - » Chromebooks
  - » iPads
  - » Android Tablets
  - » Computer Labs
  - » Projectors
  - » Smartboards
  - » Smartphones
  - » BYOD

## ROLLOUT OPTIONS

- What type of rollout will your district choose when implementing game-based learning?
  - » **Phased Rollout:** Implement a game-based learning program at select schools within the district to better manage onboarding.
  - » **Full Implementation:** Implement a game-based learning program across the entire district at once so that all teachers, students, and schools have equal access to the resources.
  - » **Piloted Implementation:** The district or schools within the district will pilot the game-based learning program with specific outcomes for a planned future implementation.

## CURRICULUM INTEGRATION CONSIDERATIONS

- Is assessment (utilizing tools such as teacher and district dashboards) important to your district?
- What type of reporting features do you need from games to inform your academic goals?
- Is it important that the games and curriculum are standards-aligned?

## TECHNOLOGY INTEGRATION CONSIDERATIONS

- Do all schools have access to adequate internet bandwidth?
- Do all schools have access to computers or devices?
- Should students be allowed to play games from home?

## PROFESSIONAL DEVELOPMENT

- Professional development is key to any technology implementation. What courses will you offer your staff to train them and engage them with game-based learning?

## BUDGET

- Are established funding sources available?
- Are alternate funding sources available?
- What is the estimated cost to the district?

## TIMELINE

What is the timeline for implementation? Here are some example milestones to consider when planning implementation:

- Identify game-based learning program and cross standards with game content.
- Identify funding sources for implementation for current or next budget cycle.
- Introduce professional development courses to prepare educators for first semester.
- Establish formative assessment measures that will provide data from gameplay.
- Introduce professional development courses to prepare educators for second semester.

# District Technology Plan:

## GAME-BASED LEARNING IMPLEMENTATION WORKSHEET

### MISSION

Educational Technology Mission:

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### TEAM

Team members:

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Support staff:

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### GOALS

What are the goals you are looking to accomplish for your district by using game-based learning?

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### TECHNOLOGY RESOURCES

What kind of technology can you utilize for this initiative? Check all that apply.

- |  |  |                                       |
|--|--|---------------------------------------|
| <input type="checkbox"/> Chromebooks     | <input type="checkbox"/> Computer Labs | <input type="checkbox"/> Smartphones  |
| <input type="checkbox"/> iPads           | <input type="checkbox"/> Projectors    | <input type="checkbox"/> BYOD         |
| <input type="checkbox"/> Android Tablets | <input type="checkbox"/> Smartboards   | <input type="checkbox"/> Other: _____ |

**ROLLOUT STRATEGY**

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**CURRICULUM INTEGRATION CONSIDERATIONS**

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**TECHNOLOGY INTEGRATION CONSIDERATIONS**

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**PROFESSIONAL DEVELOPMENT OPPORTUNITIES**

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**BUDGET**

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# IMPLEMENTATION TIMELINE

SCHOOL YEAR: \_\_\_\_\_

JUNE	JULY	AUGUST	SEPTEMBER
<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>
OCTOBER	NOVEMBER	DECEMBER	JANUARY
<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>
FEBRUARY	MARCH	APRIL	MAY
<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>

# Success Story: Sun Prairie School District's Implementation

Located outside of Madison, Wisconsin, the Sun Prairie School District serves more than 8,120 students in grades 4K - 12. The district is one of the fastest growing school districts in the state and prides itself on being a leader in technology. The district has implemented a 1:1 initiative, partnered with nationally-recognized learning organizations, and created state-of-the-art technology centers and resources, giving students access to robotics, gaming, and coding.

With a focus on student engagement, the Sun Prairie School District investigated numerous digital tools to enhance their 1:1 initiative. District members wanted to ensure the selected materials weren't just "drill and practice" tools, but provided the students with more engaging content that helped build 21st Century Skills. They realized that game-based learning provided a dynamic digital experience that complemented their 1:1 implementation.



*“ We don't want to put Chromebooks in our schools and have them just become typewriters. That's really a waste of the resource. Part of our task is to give teachers quality digital materials they can use in their class.*”

**MICHAEL MADES, DIRECTOR OF TECHNOLOGY**

## IMPLEMENTING GAMES

The game-based learning program, currently implemented in all elementary and middle schools, provides teachers with engaging digital content that helps them be a “guide on the side,” creating a more personalized learning experience for students. For students, games offer a safe place to try, experiment, iterate, and fail.

“Kids are comfortable with games, but they may not feel comfortable in the classroom. Because of this they're more inclined to take risks in a game.”

- Anne Larson, Digital Learning Manager

Over the course of the two-month implementation period, district staff reviewed all of the games included in the package to determine where they would best fit in terms of grade level and curriculum. Finding a pre-established game-based learning program allowed Sun Prairie administrators to find standards-aligned resources that complemented their curriculum. Before introducing games into the classroom, teachers were encouraged to participate in game nights and professional development workshops.

The game nights were introduced by the districts to provide a safe and supportive environment for their educators to play the games while giving them time to ask questions. These activities helped educators get excited about using games in the classroom while achieving a better understanding of the philosophy behind game-based learning.

When introducing games into the classroom, the Sun Prairie School District established a launch program that allows teachers to play the games before instructing with them. After teachers are comfortable with the games, students play through a selected game, and then play it again as it is added into the curriculum.

## RESULTS

The implementation of a district-wide game-based learning program has yielded significant results in the Sun Prairie School District. Not only are kids excited about games and learning, teachers in the 1:1 environments have more teaching tools than they had before. Game-based learning has provided teachers and district administrators with a way to provide personalized learning experiences while getting students invested in their learning.

Sun Prairie administrators are also excited that students want to learn how to create games. Concurrent with their participation in this program, Sun Prairie School District educators have developed a program to teach students about the process of creating educational games. With this knowledge, students create a game based on a learning objective as part of a passion project.

"Our school board members who have children in the schools say, 'Finally, something for the kids that's more than a book. Something different, but still delivering all that great content that we want our kids to learn.'"

- Michael Mades, Sun Prairie School District

As the Sun Prairie School District continues to expand their program, they aim to increase the number of teachers utilizing game-based learning and the number of professional development opportunities for teachers.

## THE GAME-BASED LEARNING PACKAGE

The Sun Prairie School District implemented a custom Game-based Learning Program from Filament Games. The Game-based Learning Program encouraged educators to get excited about using games as learning tools and provided them with the opportunity to play games in a guided, supported environment.

For Sun Prairie, professional development and teacher game nights were essential components to the success of their implementation. Educators became more invested in game-based learning because they understood the teaching philosophy behind these powerful digital tools.

"If you know why you're going to choose an instructional strategy you're more likely to succeed. If you don't start with why it's just one more thing to do."

- Anne Larson, Sun Prairie School District

## BY THE NUMBERS



**2,300+**

PLAY SESSIONS ACROSS  
THE DISTRICT



**9**

PARTICIPATING SCHOOLS



**28**

TEACHERS ACCESSING  
THE GAMES



**1,021**

STUDENTS LEARNING  
WITH GAMES

# Interview: St. Ann's Catholic School's Implementation



Located in Stoughton, Wisconsin, St. Ann's Catholic school is a parochial school serving students in pre-kindergarten through eighth grade. Kara Roisum, previously both an English and Computer Science teacher, is in her second year of principalship at St. Ann's Catholic School. She received her Masters in Instructional K-12 Technology from Cardinal Stritch University, is currently serving on the board of principals for the Diocese of Madison, and shares her school office with her pet veiled chameleon, Jabs.

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*Why did you want to use games in your school?*

**KR:**

I first started teaching back in 1990. Watching how kids have changed over the years, I see now that kids don't want to be passive learners. Kids really want to know, "when will I ever use this?" They demand that. They really want to know why their learning matters.

I've always been of the mindset that you have to give hands-on things to students rather than just tell them information. Many classrooms do have educational computer games, but much of the time they are treated as either free time fillers, as extensions for students who need extra help, or as rewards for students who finish early and want to practice a skill. In other words, there is little teacher interaction and, therefore, no connection to assessment and objectives. There isn't always a bridge built between the teacher and the students.

What I like about Filament Games is that they provide hands-on learning for the kids, which allows them to take ownership of their own learning. At the same time, since the games are aligned with standards and curriculum guides, the teachers get to take a backseat in the students' learning while still monitoring student achievement and mastering of the standards. And, best of all, because the games are so interactive and engaging, the students ultimately get to demonstrate their knowledge and teach the teacher. I love that!

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*What would you say to teachers or administrators that are new to, intimidated, or have a negative view on games?*

**KR:**

I think that for a lot of teachers, both young and old, intimidation comes from the fact that they feel that they need to be masters of the content, so unfortunately they develop a philosophy that if they don't have mastery of the content or don't understand the games, then there's no place for them in the classroom. Traditionally teachers have been taught that they need to be the content providers and have control. There's still that fear of losing control.

But what many teachers are quickly learning is that they don't have a choice when it comes to information and the speed with which students are learning today. As educators, we simply cannot keep up with our students. By the time we open a textbook, the information is old and outdated, and when it comes to their savvy with technology, we as teachers don't stand a chance. I know they will take one of these games and run with it, whether or not I have a full understanding of it. What I would tell these teachers and administrators is that it's okay to admit that they don't know everything about these games and that instead they should get excited about the prospect of their students showing them how the games work. That's what kids want to do - they want to be a master of something and show us what they've discovered. You have to let go of the reins a little, while at the same time ensuring the resources you're using are meeting the necessary learning objectives.

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*What's next for you in implementing Filament Games titles this year?*

**KR:**

I think it is important to make sure your teachers feel comfortable with the transition. Even if I'm ready to run with something, I think it's important to be patient. However, I don't want to be too patient because it's also easy for an idea to be cast aside or die out. So I want to sit down with my teachers and make an implementation plan.

I try to help out as much as I can in finding implementation methodologies, too. I ask questions to my teachers like, "can you take this game and find a way to incorporate it into a unit this year?" or "can you give the 8th graders a game and have them come back and tell you what they learned from it?" It's important to make sure the teachers feel just as engaged as the students do.

## **THE GAME-BASED LEARNING PACKAGE**

St. Ann's implemented a custom Game-based Learning Library Package from Filament Games. The learning game library was tailored to meet the school's curricular goals and included teacher and district dashboards, supplemental curriculum, and professional development.

# Funding

School budgets are tight and one of the biggest hurdles to implementing games at a district-wide level is funding. The funding list below provides a few annual and ongoing opportunities that support programs from the classroom to the school district.

"We've been very fortunate that we have access to grants. Being a small catholic school, our funding is tight. We've been very fortunate to have access to a grant from the bryant foundation for curriculum-based items. But i'm also of the philosophy of when there's a will, there's a way. There are plenty of grants out there. We just have to be willing to search for them."

- Kara Rosium, principal at St. Anne's Catholic School

## FOR THE CLASSROOM

### **AdoptAClassroom.org**

[AdoptaClassroom.org](https://www.adoptaclassroom.org) is a way for teachers to specifically ask for things they need in their classrooms and people online can donate to the cause. The best part about this website is you can search locally to support schools in your community.

### **DonorsChoose.org**

Just like [AdoptaClassroom.org](https://www.adoptaclassroom.org), [Donors Choose](https://www.donorschoose.org) is another way for teachers to put things they're hoping for online and rely on the good samaritans of the internet to help fund their needs. In addition to searching locally, donors can also search to fund classrooms by subjects that they're passionate about.

## FOR THE SCHOOL

### **The National Education Association Foundation Student Achievement Grants**

This grant is for programs that support self-directed learning, critical reflection, and academic achievement. Grant applicants can apply up to three times a year and be awarded up to \$5,000. [This grant](#) is unique because it encourages applicants to be teachers with less than seven years of experience in the profession.

### **Toshiba America Foundation Grants For Grades 6 - 12**

There are many great educational games available that help teach mathematics and science. If you're looking for a grant to help supplement costs for adding innovative math and science materials (including digital content) to your school, check out the [Toshiba America Foundation Grants](#) for Grades 6 - 12. Toshiba America Foundation is looking for educators who want to make mathematics and science more engaging for students, and will award \$5,000 or more annually to schools with a vision.

## FOR THE DISTRICT

### **The McCarthy Dressman Education Foundation Academic Enrichment Grants**

These grants support districts that serve students who struggle academically or come from low-income households. [This annual grant](#) will award up to \$10,000 to K-12 educators so they can implement a program that nurtures the intellectual, artistic, and creative abilities of students.

### **Voya Unsung Heroes Grants**

The [Voya Unsung Heroes Grants](#) takes innovative teaching program ideas and awards up to \$25,000 a year for applicants with creative teaching ideas and techniques on improving student learning.

# Tech Highlight:

## Alternative Hardware Solutions for Game-based Learning

Learning games can be used in the classroom through a variety of teaching methods and devices. From collaborative gameplay using a projector or Smartboard to a fully implemented 1:1 program, using games to get students excited about learning is possible almost anywhere.

For those that have consistent access to tablets, Chromebooks, or computer labs, implementing a game-based learning program is a great way to get the most value out of these devices. As you may already be aware, though it's difficult to implement these 1:1 programs, it's even more difficult to ensure you're providing educational, engaging, and reliable content to justify your hardware purchase.

If you have schools or grade levels in your district that do not have consistent access to these devices, there are a variety of other ways to bring the game-based learning to the classroom.

### COMPUTER LAB

The tried and true computer lab is one of the best places to play games. Computer labs allow students to collaborate while playing games. Collaboration during gameplay is one of the best ways to encourage students to solve problems. Research has shown that gameplay can help students demonstrate greater social and emotional well-being. After your students get set up in the lab, sit back and watch the collaboration happen! You'll be surprised at how they work together to solve problems and answer questions.

### IPAD OR TABLET CARTS

If your school provides access to a cart full of iPads or Android tablets, work with your Technology Coordinator or Media Specialist to load games on the devices ahead of time and then bring your students down to the LMC to play games.

Bonus: if your students enjoy the subject matter of the games they play, ask your librarians if they could recommend books to students on similar topics.

### PROJECTOR

A great way to play games with younger learners (for example, a middle school-focused game with elementary school students) is to project the gameplay at the front of the classroom from the educator's computer. During class students can take turns solving each level. This allows students to work as a group to ask questions and give hints to their peers, completing the game as a team.

### SMARTBOARD

Similarly to using a projector, a Smartboard allows the entire class to experience a game together, bringing a whole new dimension of interactivity to the classroom. Make sure you've tested the game before having students play. Not every game will work with Smart technology or group play (turn-based games are good for these scenarios).

### CLASSROOM MINI-LABS

Many classrooms come equipped with a "mini-lab" of computers at the back of the room. These desktops are used for everything from standardized tests to splitting the class in groups for separate activities. Make use of these machines by encouraging one group of students to complete a curriculum activity, and another group of students play a game covering the same content area. Have the two groups come together at the end of class to talk about the differences and similarities between real-life construction and simulated gameplay. You can switch groups next class.

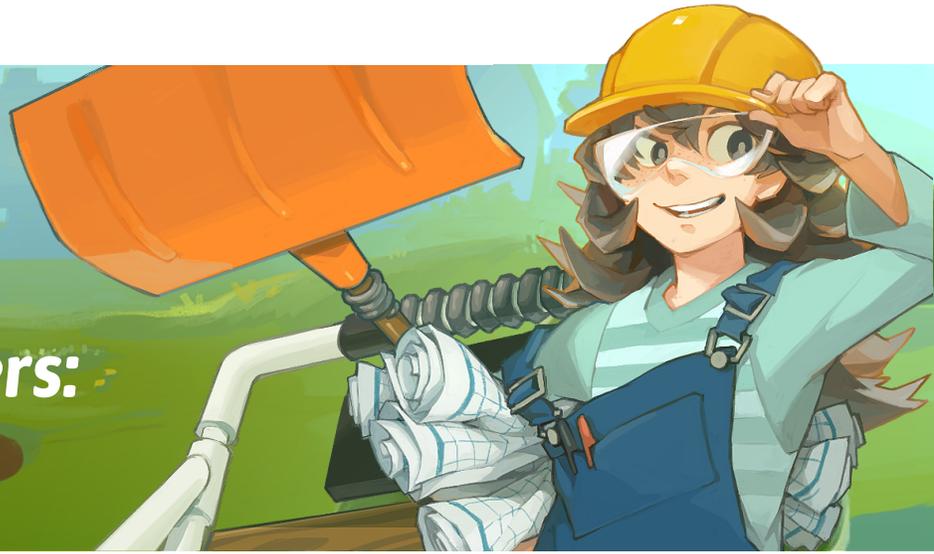


Implementing a game-based learning program at a district-wide level is an exciting endeavor. Using the power of games to engage, inspire, and motivate students and teachers has yielded significant results for districts all over the country. We created a game-based learning program because we believe in the ability to transform people's lives through the power of games. In the remaining pages of this eBook we share a case study about the use of one of our games in the classroom and information about our game-based learning program. We hope that you find our company information valuable, but more than that, we hope we've deepened your appreciation and interest in game-based learning.

Children like Rebecca and Diego are just waiting for an opportunity to better connect with students and educators. You have the tools to make that happen. You have the power to transform a child's learning experience.

**- THE FILAMENT GAMES TEAM**

# Backyard Engineers: A Case Study



## BACKGROUND

*In order to bring the advantages of game-based learning into the classroom, Backyard Engineers was incorporated into an interdisciplinary unit tied to Next Generation Science Standards. Not only did the students enjoy participating in the game, results showed an increase in test scores between a pre- and post test.*

**Implementing game-based learning in the classroom creates opportunities for students to further their knowledge by exploring content in a meaningful and engaging way. Not only do learning games inspire and engage students — they help build critical thinking, creative problem-solving, and teamwork skills.**

**Learning games can be used in the classroom to teach new content, reinforce previously taught content, and measure student learning. Learning games are at their most beneficial when integrated with additional instructional activities. A well-designed learning game can be seamlessly integrated into classroom experiences to create a richer, more dynamic learning ecosystem.**

**Michele Huppert, seventh grade STREAM teacher, incorporated Backyard Engineers into her classroom activities and did just that.**

## STUDY DESIGN

### KEY COMPONENTS:

- 🔵 **Pre- and post test data: Gained through testing using Google Forms**
- 🔵 **Designated in-class game play time**
- 🔵 **Integration of digital and physical activities to reinforce classroom content**
- 🔵 **Post experience reflective writing activities**

Google Forms were utilized to create both pre- and post tests for the 63 students in this case study. All of the students received access to *Backyard Engineers* and played the game on designated lab days. The game reinforced concepts that the students were learning during their classroom lessons and activities. Concepts included catapult criteria and constraints, structural design, forces, velocity and acceleration, and work and energy.

In addition to playing *Backyard Engineers*, the students also participated in a culminating event in which they were asked to design, build, and test catapults, towers, and heraldic banners. The students were then able to physically play a game similar to that of *Backyard Engineers*.

# KEY RESULTS



17.42%

AVERAGE INCREASE IN SCORES ACROSS ALL STUDENTS



20.09%

AVERAGE INCREASE IN GENERAL STUDENT SCORES BETWEEN PRE- AND POST TEST



9.56%

AVERAGE INCREASE IN SCORES FOR STUDENTS WITH IDENTIFIED SPECIAL NEEDS



## ABOUT BACKYARD ENGINEERS

Backyard Engineers is an engineering learning game aligned to several middle school science standards. In order to successfully complete the game, students must customize different catapult elements in order to manipulate movement, accuracy, and range.

## ADDITIONAL OBSERVATIONS

- *Students played Backyard Engineers outside of class*
- *When working in teams, students developed social and collaborative skills by selecting leaders to fill team positions*

*“ Digital learning games are a powerful tool to incorporate into any classroom. While labs and hands-on activities help solidify learning concepts, game-based learning brings an element of engagement that allows students to truly understand and encode concepts. ”*

**- MICHELE HUPPERT**

## ADDITIONAL INFORMATION

This case study evaluated the progress of 63 seventh grade students at Spring Valley Middle School in Wisconsin. Of those 63 students, 16 of them had identified special needs.

**Backyard Engineers features dashboard capabilities that allow teachers to check in on progress and assess which learning objectives students have encountered. This function is available in real-time, allowing just-in-time intervention when students need it most! Integrated free curriculum is also available to enhance student learning and provide additional classroom activities.**



Go to [www.filamentlearning.com](http://www.filamentlearning.com) to learn more about implementing game-based learning and schedule a demo!

# Filament Games Game-based Learning Program

Get ready to kickstart a game-based learning initiative with Filament Games in your school, district, or learning program! Choose from the options below to find the best fit for your technology and learning goals.

## FEATURES:

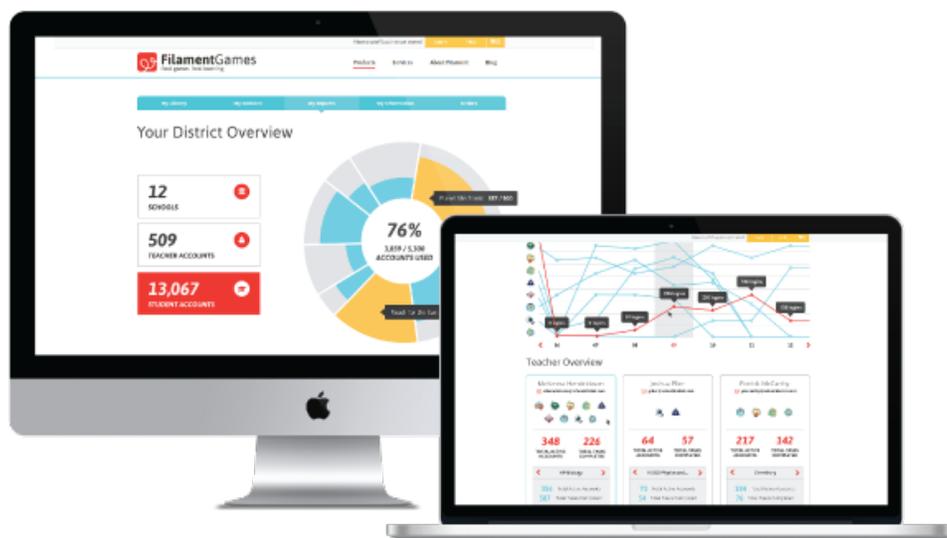
- ✓ **UNLIMITED ACCESS WITH RECYCLABLE ACCOUNTS**
- ✓ **NO SUBSCRIPTIONS - BUY ONCE, USE FOREVER**
- ✓ **ABILITY TO GROW YOUR DIGITAL GAMES LIBRARY**
- ✓ **INCLUDES TEACHER AND DISTRICT DASHBOARDS**
- ✓ **CUSTOMER SUPPORT INCLUDED**

## LEARNING GAMES LIBRARY

- ✓ **COST EFFECTIVE ONE TIME PURCHASE**
- ✓ **ADD THE NEWEST GAME TITLES**
- ✓ **SCHOOL AND DISTRICT DASHBOARDS**

The Filament Learning game library is cost-effective and easy to implement in your school or district. With a purchase of the Filament Learning Store catalog, your educators will have unlimited access to our award-winning collection of game titles, dashboards, and web-based curricula available on our website. Our package is a one time purchase - there are no subscriptions for your schools and you have the ability to buy more games as they become available in our growing collection of learning game titles.

Our School and District dashboard gives valuable insights into how learning games are being used in your classrooms. Metrics show valuable usage and completion information for administrators or team leads to share with their teams.



## GAME-BASED LEARNING PROFESSIONAL DEVELOPMENT COURSES



### GAME-BASED LEARNING 101

Educators will get excited about using games as learning tools as they are given the opportunity to play games in a guided, supported environment. This course will give your educators the skills, knowledge, and confidence to implement game-based learning in their classrooms. At the end of this course, teachers will understand how to effectively leverage games as personalized learning tools, how to evaluate good games for learning, and the kinds of models and practical considerations they should incorporate when implementing game-based learning.



### DESIGNING LEARNING GAMES

This hands-on course shows educators of any subject area how to teach content and 21st century skills with game design. Educators will learn about when games are useful teaching and learning tools as they design and create non-digital learning games for the content of their choice. They will leave the course with games that they can use with their students as well as with the skills and understanding they need to lead their students in the practice of game design.



### DEVELOPING LEARNING GAMES

Take game-based learning to the next level by introducing your educators and students to digital game design and development. Spend a day with the Filament Learning team to learn how to create web-based games and learn how digital game projects are a great way to develop computational thinking skills. By taking their first step into digital game development, your educators will work with the Filament Learning team using rudimentary game-making applications to start to bring your idea to life.

## Contact Us

*Contact our Implementation Specialist today for a custom quote for your school or district!*



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