PINE CREST

neXt

EXPEDITION

INNOVATION EDUCATION

Innovation Education Expedition

Overview:

- Through the programming of Pine Crest neXt, schools can attend a two-day, highly specialized, intensive *Innovation Education Expedition* strategy lab. The Expedition aims to provide faculty and administrators from other schools with insights into our program and practical guidance on creating innovation and STEM initiatives aligned with their school's missions. Interested schools should schedule an initial consultation to access the innovation foundation of their current curriculum/program and identify their specific needs and goals.

Purpose and Customization:

- Innovation Education Expedition is personalized for each school.
- It is a strategy lab for a small group of educators and school leaders to collaborate with the Pine Crest Innovation curriculum team. Ideally, a team of 4 to 6 members from one school should participate.
- Attendees will engage in a two-day kickoff training at Pine Crest with a fully innovative immersion experience.
- The collaboration includes:
    - Two days of training and strategy development at Pine Crest focused on STEM and innovation education.
    - Five 1 hour virtual sessions focused on curriculum development
    - Two days for follow-up sessions at your school. Participating schools will revisit the content covered in the initial training. They will engage in discussions with Pine Crest Innovation Specialists to share their experiences, challenges, and

successes since the training was completed. The Pine Crest team will provide feedback on implementing the participating school's program. They will address questions, troubleshoot challenges, and offer guidance.

- The *Innovation Education Expedition* strategy lab is designed to equip educational leaders with the knowledge, skills, and mindset needed to foster an innovation program at their school. Through immersive experiences, practical workshops, and interactive sessions, participants will explore various aspects of Innovation Education and Makerspace curricula. The strategy lab is unique for each institution. Each participating school will be offered customized sessions focusing on leveraging the unique strengths, resources, and context of each school. Participants will identify ways their institution can contribute to developing a curriculum that can help their institution make positive and innovative progress.

Examples of Program Sessions (*Sessions will be customized to fit the needs of each school.*)

- **“Mission Possible: Crafting a Compelling Vision for Your Makerspace”**
  What Goes Into Creating and Justifying a Vision and Mission Statement:
  Developing a compelling vision and mission statement is critical in establishing a maker space that aligns with a school’s educational goals and justifies its implementation to stakeholders. This process involves understanding the educational benefits of maker spaces, including enhanced student engagement, skill development, and improved academic performance.

- ***"Designing the Blueprint: Crafting Flexible and Inspiring Makerspace Environments"*** In this workshop, participants will learn the foundational principles of designing effective makerspaces. The course will cover essential elements such as layout, functionality, and sustainability in creating environments that meet the needs of various users. By understanding the interplay between space design and infrastructure, participants will gain insights into optimizing available resources while ensuring

compliance with safety and regulatory standards. Research indicates that well-designed spaces significantly enhance productivity and user satisfaction. Participants will explore practical strategies for integrating design thinking into their projects, enabling them to create spaces that foster collaboration and innovation. The workshop will also highlight case studies showcasing successful infrastructure designs prioritizing user experience and adaptability. By the end of the session, participants will have actionable strategies to effectively assess and implement space design principles, empowering them to create infrastructure that not only meets current demands but also anticipates future needs. This knowledge will equip them to approach projects with a comprehensive understanding of how design impacts functionality and user engagement, ultimately leading to more successful outcomes in their infrastructure initiatives.

- ***"Building a Dream Team: Staffing for Success in Makerspaces":*** In this workshop, participants will learn the essential elements of effectively staffing a makerspace to maximize its impact on student learning and engagement. A well-staffed maker space requires skilled facilitators and individuals who can inspire creativity and student collaboration. Participants will explore best practices for recruiting and training staff, including identifying candidates with technical expertise and a passion for hands-on learning. The session will cover strategies for creating a supportive environment where staff can share their knowledge, mentor students, and collaborate on projects. Additionally, participants will learn about the importance of ongoing professional development to keep staff updated on the latest tools and technologies. By the end of the session, participants will have actionable strategies for building a dynamic team that enhances makerspace offerings and fosters a culture of innovation, preparing students for future challenges and opportunities.
- ***"Curriculum Reimagined: Integrating Makerspace Innovations for Engaged Learning":*** Participants will learn how to design and enhance their curriculum and instructional practices to integrate makerspace activities effectively in this workshop. By aligning makerspace projects with educational standards and learning objectives, educators can create a more engaging and relevant learning experience for students. Research indicates that curricula incorporating hands-on, project-based learning improve student outcomes by fostering critical thinking, creativity, and collaboration. Participants

will explore strategies for developing interdisciplinary units that leverage maker space resources, allowing students to apply their learning in real-world contexts. Additionally, the session will cover best practices for assessment and evaluation to measure the impact of these integrated approaches. By the end of the session, educators will have actionable strategies for building a dynamic curriculum that enhances student engagement and equips them with the skills necessary for success in an evolving job market.

- ***"Transforming Teaching: Unleashing the Power of Maker Spaces in the Classroom":*** This workshop is designed to foster buy-in among classroom teachers by demonstrating the transformative potential of a maker space in enhancing their curriculum. By having maker space innovation specialists attend grade-level meetings, teachers will receive tailored support and insights into integrating maker space tools—such as 3D printers, laser engravers, soldering stations, and power tools—into their lesson plans. Immersive experiences and practical workshops will allow teachers to experiment firsthand with these technologies, building their confidence and creativity in using them. Additionally, sharing successful case studies from other institutions that have effectively integrated makerspaces will illustrate how these environments can create compelling, hands-on learning experiences that captivate students' interests and enhance educational outcomes. Finally, by focusing on project-based designs that involve real-world problem-solving, teachers will see how maker space initiatives can benefit the community, further underscoring the value of collaboration and innovation in the classroom.
- ***"Designing the Future: Innovating Makerspaces for Maximum Impact":*** Participants will learn how to create advanced designs for their makerspaces that optimize functionality and innovation in this workshop. Participants will explore incorporating cutting-edge tools and technologies, such as CNC machines, 3D printers, and robotics, to enhance the learning environment. Research indicates that well-designed makerspaces prioritizing flexibility and collaboration improve student engagement and creativity. Participants will discuss best practices for configuring physical layouts that accommodate diverse projects and foster teamwork, as well as how to integrate resources that support a variety of learning styles. The session will also cover considerations for future-proofing makerspaces, ensuring they evolve alongside technological advancements and educational needs. By the end of the workshop, participants will have actionable

strategies to design and implement advanced makerspaces that inspire creativity and prepare students for success in a rapidly changing world.

- ***"The Maker's Path: Project-Based Learning for the Modern Classroom."*** This session is designed to introduce PreK-12 educators to project-based learning (PBL) fundamentals and how to integrate it effectively into makerspaces. Participants will explore the core principles of PBL—such as student-driven inquiry, collaboration, and real-world problem-solving—and discover how these principles align seamlessly with a maker space's hands-on, creative environment. By blending PBL with makerspaces, educators can offer students opportunities to engage in deeper, more meaningful learning, fostering creativity, critical thinking, and innovation through various tools and technologies. Participants will learn to design PBL units that leverage makerspace resources and tools through discussion, case studies, and guided activities. They will collaborate to create a project aligned with curriculum standards, incorporating practical strategies for managing student learning, scaffolding projects, and assessing student outcomes. By the end of the session, participants will leave with a PBL unit template, specific ideas for their classroom, and an actionable plan to begin integrating PBL in their makerspaces.
- **"Empowering Innovators: Advanced Training for Makerspace Educators and Leaders"** In this workshop, participants will explore advanced strategies for effectively managing and enhancing makerspace programs. Designed for staff familiar with basic operations, this session will focus on cultivating a dynamic learning environment that encourages creativity and innovation. Participants will explore cutting-edge tools, technologies, and methodologies to elevate the makerspace experience for staff and users. Research shows that a well-trained staff is crucial in creating successful makerspaces, as they can provide mentorship, foster collaboration, and ensure a safe and engaging atmosphere. The workshop will cover best practices for staff development, including facilitating workshops, mentoring users, and integrating interdisciplinary projects that align with current educational standards. Participants will also learn about building a strong community within the makerspace, including strategies for engaging diverse groups and promoting inclusivity. By the end of the session, participants will leave with actionable strategies to enhance their skills, optimize makerspace operations, and create a supportive environment that prepares users for future challenges and opportunities in

creative fields. By the end of this workshop, participants will be equipped with the knowledge and skills to transform their makerspaces into vibrant hubs of creativity and collaboration, ultimately empowering educators and learners to thrive in an innovative educational landscape.

- ***“Empowering Tomorrow's Leaders: Cultivating Student Agency in Makerspaces”:*** Participants will learn how to empower students to take on leadership roles within their makerspaces in this workshop. By fostering a culture of student leadership, schools can provide invaluable opportunities for students to mentor their peers, lead projects, and drive initiatives. Research shows that educational environments prioritizing student agency and leadership lead to improved engagement and achievement. Participants will explore strategies for creating structured programs that allow students to develop essential skills such as project management, teamwork, and problem-solving. The session will also cover methods for encouraging student-driven initiatives that align with their interests and passions, enhancing their learning experience. By the end of the workshop, participants will have actionable strategies to cultivate student leadership in makerspaces, ultimately preparing students for future challenges and opportunities in their careers and communities.
- ***"Makerspace Mastery: Building Creativity from Basics to Breakthroughs":*** *Are you ready to transformyour makerspace into a hub of innovation?* This workshop will guide participants through the Three Levels of Makerspaces, taking students from simple, hands-on creativity to game-changing breakthroughs. We begin with Level 1: Basic—an entry point that any school can adopt. Equipped with affordable tools like glue guns, scissors, cardboard, LEDs and batteries, this is where young minds light up. Students gain confidence as they tinker, solve problems, and bring ideas to life using simple materials. At this stage, the goal is to spark curiosity and creativity, setting the foundation for more extensive and complex projects. As your makerspace evolves, so does its potential. Level 2: Intermediate transforms your space into a dynamic invention hub with tools like 3D printers, sewing machines, laser cutters, and robotics kits. Here, students transition from imagination to creation, diving into more advanced, cross-disciplinary projects that challenge them to integrate technology, engineering, and art. This is where your makerspace catalyzes deeper learning, fostering collaboration and advanced problem-solving. But why stop there? Level 3 Advanced is where the magic truly happens in the innovation powerhouse. With specialized tools like CNC machines,

industrial-grade 3D printers, and electronic workstations for coding and hardware development, students will tackle real-world challenges, build high-precision prototypes, and create projects that rival professional work. This level transforms your makerspace into a launchpad for future innovators, engineers, and creators ready to shape the world. This workshop will show you how to scale your makerspace step by step, empowering students with tools that fuel their creativity and equip them with career-ready skills. From the most straightforward ideas to groundbreaking innovations, your makerspace will inspire the next generation of creators and problem-solvers.

- ***"Maker Mindset: Unlocking Innovation through Resilience and Creativity":*** We dive deep into the Maker Mindset in this workshop. This transformative approach empowers students to become fearless innovators and problem-solvers. At its core, the maker mindset fosters creative risk-taking. It embraces failure as a stepping stone towards success, the essential skill needed to thrive in today's fast-paced, innovation-driven world. By teaching students to see setbacks as opportunities for iteration and improvement, we help them build resilience and develop the confidence to tackle any challenge. Participants will also learn how to cultivate an environment centered on inquiry-based learning and iterative thinking, where the journey of exploration is as important as the final result. The workshop also highlights the power of collaboration and peer mentorship, which cultivate a culture of shared knowledge and support. Here, students do not just work together—they inspire each other, transforming every challenge into an opportunity for collective growth. Participants will leave this workshop with strategies to foster these values, turning their makerspaces into true innovation hubs. When students embrace the maker mindset, they don't just succeed in the classroom; they develop tools to thrive in life.
- ***"Keeping Tradition Alive: Leveraging Makerspaces to Modernize School Traditions and Curriculum Projects":*** This professional development session focuses on integrating makerspace tools and resources to elevate traditional projects, preserving the essence of your school's unique culture and rites of passage while aligning them with modern educational practices. Many assignments—such as invention fairs, historical dioramas, and capstone presentations—are not only academic exercises but also cherished traditions that reflect the identity and values of the school community. By incorporating

makerspace tools and techniques, educators can transform these projects into dynamic, interdisciplinary experiences while maintaining their cultural importance. Participants will learn strategies for reimagining these rites of passage using makerspace resources to enhance student engagement and develop 21st-century competencies. Ultimately, this session empowers educators to honor their school's past while preparing students for the future.

Outcome: By the end of the program, school leaders will be better equipped to integrate Innovation education principles into their institutions, positively impacting students in the community.

Draft Schedule: Day 1

Time	Location	Event
9:00 a.m.	Parking Garage	Arrive in Campus
9:15 a.m.	Markham Center	Session 1
10:30 a.m.	Markham Center	Break
10:45 a.m.	FTL Campus	iLab Visits
12:45 p.m.	Endelson Conference Room	Lunch
1:45 p.m.	FTL campus	Session 2
3:00 p.m.	Parking Garage	Depart Campus

Draft Schedule: Day 2

Time	Location	Event
9:00 a.m.	Markham Center	Arrive in Campus
9:15 a.m.	Markham Center	Strategy and Curriculum Planning
12:15 p.m.	Endelson Conference Room	Lunch
1:15 p.m.	Markham Center	Strategy and Curriculum Planning
2:30 p.m.	Markham Center	Discuss Takeaways & Next Steps
3:00 p.m.	Parking Garage	Depart Campus

For inquiries, next steps, and registration information regarding scheduling the Innovation Education Expedition for your school, please contact:

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