

HOW TO DEVELOP A SCOPE & SEQUENCE

In the P-TECH 9-14 school model, student learning is focused from grade nine on, through an integrated six- year scope and sequence of high school classes, college courses and work-based learning experiences. The scope and sequence provides the fundamental blueprint or pathway for all students to earn their high school diploma, associate degree and relevant workplace knowledge. The document is a semester-by- semester overview of the school’s program, covering the full range of grade levels and content areas, paying particular attention to the specific order and thoughtful arrangement of academic courses and work-based learning experiences. It is important that the document accounts for both the “big picture” of high school and college credits potentially earned by year, as well as the interplay between academic courses and work experiences.

Developing a scope and sequence and building out the various pathways is a complex process that must take into account:

- Local high school graduation requirements, including required courses and exams,
- Local career and technical high school graduation requirements, if relevant,
- College entrance requirements
- Academic requirements and prerequisites for the associate degree(s) offered, and
- Workplace skills and experiences that are needed for employment in the specific industry.

1. Who develops the scope and sequence?

The development of the scope and sequence requires that all partners work together to construct a thoughtful and comprehensive document. The school and school district need to ensure that the high school curriculum meets local graduation requirements; the college must ensure that selected college courses meet specified degree requirements and that eligibility requirements for college courses are clear; and the employer must ensure that the key skills developed in the coursework and workplace learning experiences meet entry-level requirements for successful employees. All three of these elements are essential when constructing a complete P-TECH 9-14 scope and sequence. All partners—the School District Partner, College Partner, and Employer Partner, are collectively responsible for ensuring these elements are accurate, current, and real for students. Without one of them, the school program itself will fall short of what is required of it.

2. What do you need to know or decide before developing the Scope & Sequence?

Before the scope and sequence document can be constructed, there are some decisions that should be made by the P-TECH 9-14 school partners:

- What are the entry-level jobs that students will be working toward ?
- What skills does the employer highlight as being essential and necessary for the identified jobs?

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- Which associate degree(s), as identified by the college partner, best align with the skills map?
- What are the number and length of internships that will be required of the students to be “first in line” for jobs with the employer?
- What are the eligibility standards for beginning college level coursework? Are there other factors that the group sees as important in students being ‘college ready’? What does it mean to be ready to be successful in a particular college course or strand of courses?
- What are the eligibility standards for internships or other workplace activities? How will students demonstrate their readiness? What does it mean to be ready to be successful in a professional setting?

An example of the type of information needed prior to developing a Scope & Sequence for a school focused on the media & design industry is included in the following table:

Entry-Level Jobs	<ul style="list-style-type: none"> • Graphic Designer • Marketing Assistant
Essential Workplace Skills	<ul style="list-style-type: none"> • Creativity • Knowledge of design concepts, including use of color, etc. • Ability to use Photoshop, Illustrator, and other digital design applications • Ability to communicate with clients • Project management • Problem solving • Critical thinking • Leadership
Associate degrees	<ul style="list-style-type: none"> • Associate of Applied Science (AAS) in Multimedia Programming • Associate of Arts (AA) in Communication Studies
Internships	<ul style="list-style-type: none"> • One six week internship • Three month capstone internship

3. What is the process for developing the first draft of the Scope & Sequence?

In constructing the first draft of the scope and sequence, begin by gathering the following components

- List all the courses required to graduate from high school, including courses that are part of the career and technical sequence.
- List all the courses required for the desired associate degree(s) and collect the course syllabi.
- Note all the entry requirements and/or prerequisites for the college courses (e.g. scoring above a 75 on the New York State English Regents exam, having a high school grade in the subject area above 2.5, etc.)

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- List all the internship/apprenticeship experiences.
- Outline the areas where each system may have flexibility (i.e., whether biology or earth science is taught first within the high school course sequence) and where flexibility is limited or non-existent (i.e., colleges may or may not have the ability to change prerequisites for specific college courses).

The next step is to place courses and experiences in each semester over the course of the six years. The entire Scope & Sequence should be designed with the goal that the vast majority of students in a given grade level will take all the courses outlined. For example, if the plan includes a college level math course in 11th grade, the school should ensure that the majority of students in the school are able to meet the prerequisites for that course by the end of 10th grade. While schools need to be prepared for the fact that some students may be truly advanced and others may struggle with some subjects, the majority of the students will be better served by keeping them together academically.

Sequencing the high school courses

High school courses should be mapped first onto the first four years so that it is easy to see where the requirements traditionally lie. State exams, where relevant, should also be identified and placed appropriately. Career and technical requirements for high school programs, where relevant, should also be mapped. Bear in mind the local requirements for “seat time” per high school credit, traditional length of class periods, use of summers, etc. Be prepared to adjust these as needed.

Focus on the 9th grade year

The first year students are in the program provides the best opportunity to assess, support and academically norm students to the program. That said, the 9th grade year should be programmed to provide as many academic and social supports as possible, which may include use of extended learning time, tutoring, enrichment, block programming, supports for English Language learners and special education students, and/or reduced content area load focused on deep conceptual work in English and mathematics. Thoughtful planning and execution of this year will allow the greatest number of students to progress through the planned six-year Scope & Sequence.

Sequencing the college courses

Planning backward from Year 6, or degree completion, map the college courses onto the six years on top of the high school courses. Since many college degree programs have a required sequence for their core courses, students will likely follow that basic sequence with some adjustments to accommodate the students’ needs. The Scope & Sequence Planning Committee should pay attention to the supports and expectations built into the college sequence, for example paired or concurrent courses and prerequisites.

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Planning Committee should pay attention to the supports and expectations built into the college sequence, for example paired or concurrent courses and prerequisites. Look for opportunities to offer dual credit, e.g., replacing a high school class with a similar college class. All high school coursework should lead to success in the college coursework, so the sequence should make academic sense. Degree programs vary in the amount of flexibility they provide students in selecting courses. Some programs may provide many options to satisfy requirements while others provide few. This will be an area to negotiate and collaborate. All college courses should be chosen for their optimal academic value, e.g., they must either fulfill a degree requirement and/or be highly transferable to other institutions, including four-year colleges.

The First College Course

The first college course in the Scope & Sequence is an important milestone for students. One of the goals of the first course is to help students understand how college courses differ from high school courses, and to give them the confidence that they will be able to succeed in more advanced courses as they proceed through the program. Many programs will offer the first college credit course in the 10th grade. This course should be carefully selected with the goal that as many 10th grade students as possible will qualify to take it. P-TECH 9-14 MODEL TOOLS Some examples include: Public Speaking, Health, Studio Arts, and/or entry-level technology courses. The first college course should be structured as a cohort course (meaning that it is comprised entirely of high school students), and will likely be offered in the high school setting.

Offering More Than One College Degree

If more than one associate degree is offered, effort should be made to give students equal exposure to courses in the departments representing each of the associate degrees selected. This will provide a 'common trunk' of college courses before students decide which 'branch' or degree to pursue. If your program chooses to offer two degrees, you will be designing two Scope & Sequences with a common core of courses. It should be noted that sometimes college courses are offered in the summer, so this can be considered when constructing the Scope & Sequence.

Prerequisites and remediation

It is important to pay attention to prerequisites for courses and internships so that students will be adequately prepared. However, remedial or developmental college courses should not be included in the Scope & Sequence. These are courses that are offered at many community colleges to help students meet college proficiency standards. The academic program at the school should be structured so that the high school courses prepare students to meet college ready benchmarks. In addition, all courses offered in the Scope & Sequence should contribute to students' ability to matriculate with the degree, which remedial courses often do not do.

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Sequencing the Workplace Learning Sequence

Along with the academic courses taken each year, the Scope & Sequence will also include a Workplace Learning sequence. The partners need to decide how Workplace Learning will be assessed and then map backwards from the final culminating assessment. Each year should have a final assessment that determines whether a student is demonstrating a combined knowledge in both their coursework and workplace experiences. The coursework and workplace learning experiences should complement each other, which are mapped out via the scope and sequence.

Questions to consider while developing the first draft:

How can college prerequisites be built into the high school course sequence? See also the “How to Ensure Curriculum Alignment at a P-TECH 9-14 School” tool.

- Which courses can satisfy both high school and college requirements? Which courses can provide dual credit?
- What academic policies for taking college courses will need to be in place, in addition to established college policies?
- How soon must a student choose a major? Will students have had equal exposure to each degree program’s area of study by the time he or she needs to decide? How can the college departments work together to ensure that students have been exposed to each choice?

4. Visualizing the Scope & Sequence

It is helpful to use chart paper or white boards to visualize the scope and sequence throughout its development. The team can use post-it notes to denote specific courses/activities. These post-its can be easily moved from one year to the next as the team discusses the appropriate sequence. Use colors and symbols to identify important features (e.g., high school versus college courses, ‘common trunk’ college courses). The chart below is an example of the way that visualizing the program can be helpful to the planning group. A complete Scope & Sequence is included as an additional resource.

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GRADE 9-14	9TH	10TH	11TH	12TH	13TH	14TH
ENGLISH						
MATH	Algebra	Geometry	Trig/Alg. 2	Pre-Calculus	Calculus	Calculus 2
SCIENCE						
HISTORY						
WORKPLACE LEARNING						
TECHNOLOGY						
ARTS						

Horizontal Alignment

The goal of the Scope & Sequence is to create a seamless academic sequence for students through the program. After the initial map is created that includes both high school and college degree coursework, the next step is to examine each content area strand horizontally (across the six years) to ensure that the high school coursework and college courses together form a logical and supported academic sequence. For example, an English sequence would include all of the necessary content to bridge successfully into the first college English course and beyond.

Vertical Alignment

This refers to the “load” students bear per semester and year in the sequence, as well as the holistic “feel” of the combination of courses and experiences per year. Each year should consider how many courses (both high school and college) it is reasonable to expect students to take and be successful, time for academic supports and extracurricular activities, as well as the fundamental skills students are building that year as they move to the next. When planning, it is important to imagine being a student in the program to anticipate what students should be learning and experiencing.

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Creating a plan to support the logistics of the program.

Due to the nature of the P-TECH 9-14 model, students and staff will likely need to travel between different settings. Once an initial draft of the Scope & Sequence has been developed, the planning team should consider the following questions:

- Which courses should be taken at the college and which at the high school?
- How convenient is travel between the campuses, and when are students mature enough to travel on their own? Note, this may dictate when those courses can be in the Scope & Sequence if the younger students cannot get to the college campus.
- Which college courses require special equipment or facilities that are not available at the high school?
- Who will teach these courses? High school teachers who have adjunct status, or professors from the college?

5. Factors to Consider as the Scope & Sequence is Refined

Crucial decision points for students in the Scope & Sequence

The Scope & Sequence document needs to include a summary of high school and college credits earned every year so that students and families understand where the important transitions and decision points are throughout the 6-year experience. Those decision points include when a student:

- Chooses a college degree pathway (if more than one degree is offered),
- Continues her/his degree path OR graduates from the school with a high school diploma and a significant number of transferable college credits,
- Chooses to earn industry certifications, and
- Knows that she/he is prepared for the entry level position in the targeted field(s).

Addressing the Needs of Diverse Learners

Because P-TECH 9-14 schools are designed to serve an unscreened population, students will enter the school with different levels of readiness, and not all students will be able to move at the same pace. The partners who develop the scope and sequence must foresee the needs of incoming students and provide sufficient time to master the content before moving on. Some students will need additional resources and supports to successfully complete both a high school diploma and an associate degree in six years. Efforts to bring students up to grade level should be front-loaded — especially in English and mathematics, as these skills provide the foundation for success in other courses. Other Scope & Sequence pathways should provide opportunities for students who are able to move more quickly through the content. These students may be able to complete the associate degree in fewer than six years, or may accumulate additional college credits.

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Understanding “readiness” for College Courses and Work Experiences

Understanding the relationship between college course eligibility and state high school assessments will be critical here. If your district does not require exams as part of earning a high school diploma, then the college’s requirements will prevail and courses and assessments will need to be defined accordingly. If exams are part of the high school diploma, then it may be important to give them at nontraditional times to ensure students meet the college eligibility requirements. For example, if a high school content exam like English is usually administered to students at the end of the 11th grade, but students will need to have taken it before the 10th grade in order to take the first college course in the English sequence, the district must accommodate moving the exam to an earlier grade. This change has obvious implications for teaching and learning for students.

6. Who Needs to Approve the Scope & Sequence

All partners should review and approve the Scope & Sequence, likely in the context of the Steering Committee. The school and school district need to ensure that the curriculum meets high school graduation requirements. The superintendent may need to review dual credit offerings and other curricular choices to confirm that it is aligned to district and state requirements. The college partner ensures that college courses meet specified degree requirements, as well as clarifies eligibility requirements for college courses. The college provost and/or college departments may need to approve when a particular course can be offered to high school students. The employer defines workplace-learning experiences throughout the program and ensures that internships will help students gain appropriate skills for entry-level jobs. While each partner has their individual responsibilities in approving the scope and sequence, it is important that they also have whole group discussions to ensure that all partners are in agreement and have a common understanding of the document.

7. Once the courses and workplace experiences are sequenced, what’s next?

Once the initial scope and sequence has been developed and approved, it can be used to plan additional elements of collaboration, including curriculum development, professional development, student supports, assessments and academic and other benchmarks, that will ensure that students move through the Scope & Sequence successfully.

Curriculum Development:

- High school and college faculty should work together to develop curriculum that is aligned throughout their content area sequence so that teachers and professors are always preparing students for the next step in the sequence of courses and workplace experiences.
- Teachers within the same grade level can develop cross-disciplinary projects that align to the core skill areas developed by industry.
- Industry professionals should work with teachers and professors to develop projects aligned with real world tasks

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Professional Development:

- High school faculty, college faculty and industry professionals can all learn about the norms and requirements of each partner's organization through site visits, discussions, and common learning experiences, leading to authentic curriculum for students.

Student Advising System

- The school, with input and support from the partners, should create an advising system for students that ensures that each student's academic and personal progress through the program is monitored, informed, and supported with appropriate interventions and checkpoints. Because the program is so multifaceted and students have many experiences to pull together, advisors must be particularly vigilant about tracking student progress and engagement, including student high school and college GPA and performance in internship settings. Families should be engaged and informed at all times.

Student Supports:

- Partners should regularly review data from the school and identify successes, challenges, and strategies and mechanisms for support.
- Partners should work together to identify transition points that may be challenging for students, and then develop support plans to ensure greater success.
- Partners can identify expected challenges and regularly assess students to uncover new challenge faced by students in order to concentrate attention and resources to address needs.
- How often will high school faculty engage in monitoring student progress and reviewing student outcomes in college classes?
- How will high school faculty support students in college courses (e.g. tutoring, recitation sections)?

Assessments/Benchmarks:

- High school teachers should work with all partners to identify appropriate assessments that can serve as milestones or benchmarks for student progress through the program.



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8. How often do you revisit the Scope & Sequence?

The Scope & Sequence is a living document and should be reviewed together with data from the school program at least twice in the school year. It is never finished, but it should always be complete. A Scope & Sequence should always be in place for students, families, partners, and the entire school community so that everyone understands the pathways to the goals established by the Steering Committee. That plan, although always adjusting to changing needs (e.g. student performance, changes in degree requirements), should always be current and available for all the stakeholders. The Scope & Sequence should be revised by the Steering Committee, in collaboration with school and college staff as teachers and professors are closest to students and offer critical perspective of the work on the ground. In addition, as the school grows and lessons are learned, pacing may change to better support students. As the students begin internship placements, those experiences may demand skills be taught at different times. It is important that all involved in the P-TECH 9-14 school model have an understanding that the scope and sequence is not something that is developed in the first year and then stands as is, but instead grows with the school.

For more information about the P-TECH 9-14 model, please visit ptech.org