Key Considerations for Designing Master Schedules

Among the many tools and policy levers at their disposal, master school schedules represent a comprehensive mechanism by which principals can orient and allocate resources and staff expertise to effectively address the diverse needs of students.[1] A carefully-considered and thoughtfully-constructed master schedule serves as a vehicle to facilitate specific instructional philosophies and to expose students to rigorous and engaging learning opportunities led by highly-qualified staff.[2] As such, **it is important that principals, and other staff supporting the design process, consider what priorities are most important to their school and district community and which constraints or legal mandates must be accounted for when planning and setting their school's master schedule.**[3]

Figure A: The Importance of the Master Schedule

The master schedule is one of a principal's most important tools. It is a function of the school's philosophy, a reflection of its vision, and a blueprint for its resource allocation. The vast majority of a school's resources may be spent on teachers but ensuring a viable curriculum that helps that school achieve its academic goals is largely impossible without an effective master schedule.

Source: Illuminate Education[4]

Principals and their teams should consider an array of logistical factors, resource constraints, and student needs to ensure that the master schedule aligns with their school's larger mission of teaching and learning.[5] Indeed, a successful school schedule will "marry student needs with organizational capacity" by ensuring that students can access academic opportunities equitably and in line with their learning needs and aspirations.[6] Given variability in those needs and aspirations based on numerous factors—such as academic interests (i.e., mostly at the secondary level) disability status, language status, gifted and talented status, and prior individual and schoolwide performance in specific subject areas—principals and their teams need to gather data on student performance and available resources to construct a schedule that best allocates resources.[7] Beginning below, Figure B outlines a series of major goals that master schedules should seek to address to maximize their positive impacts on teaching and learning.

Figure B: Master Scheduling Goals Checklist

GOAL AREA #1: OPTIMIZATION OF THE STUDENT EXPERIENCE

☐ Courses are scheduled in a way that provides all students with access to the courses they need.

☐ The schedule provides opportunities for students to take the courses required to be college- and career-ready.

☐ Students have access to the right combination of courses, including intervention, core courses, advanced options, and electives.

☐ Prioritized classes are placed at the right moments throughout the day or rotated to achieve the right balance.

☐ The schedule provides structures to allow students and teachers to develop deep relationships with other students and teachers.

GOAL AREA #2: MAXIMIZATION OF INSTRUCTIONAL TIME

☐ The schedule, when possible, avoids short blocks of time, unequal class lengths, and classes split by lunch.

☐ Transition time is minimized.

☐ Struggling students spend more time on subjects in which they are struggling.

☐ The number and length of periods are appropriately aligned with student learning needs, teacher expertise, and the school's desired instructional model.

☐ The allocation of instructional time reflects prioritization of core academics and the highest priority areas.

☐ The master schedule provides sufficient time to help students master content and meet social-emotional goals.

☐ Students are fully scheduled.

GOAL AREA #3: PROVISION OF COLLABORATIVE PLANNING TIME

☐ Shared-content teams—including staff that work with English learners, students with disabilities, and gifted and talented students—have planning blocks together for at least 90 consecutive minutes per week.

☐ The schedule provides time for response to intervention (RTI)-based student conversations and periodical vertical planning meetings.

GOAL AREA #4: LIMITING TEACHER LOADS

- ☐ Teachers have lower loads of students in subjects where extensive feedback is required (e.g., writing) or to enable better relationship building between students and teachers.

GOAL AREA #5: FLEXIBILITY

- ☐ The schedule provides flexibility that allows teachers to make frequent changes to the amount of time spent on content areas and group sizes based on student progress.
- ☐ Group sizes are reduced for high-priority areas.
- ☐ The schedule creates pathways of credit recovery and opportunities for students to advance.

GOAL AREA #6: EFFECTIVE PROVISION OF STAFF

- ☐ The most effective teachers are assigned to the highest priority grades and/or content areas.
- ☐ Expertise is balanced across grade and subject teams.
- ☐ Experts are available to support collaborative planning (e.g., professional learning communities).
- ☐ Experts are provided with sufficient time to prepare for collaborative planning (e.g., professional learning communities).
- ☐ Staff involved in specialized programs for English learners, students with disabilities, and gifted and talented students are included in the school schedule to create predictability in their push-in, co-teaching, and/or skill-based groupings support.
- ☐ Pull-out support is scheduled in ways that minimize disruption to the student day.
- ☐ Any extended learning time is integrated and aligned with the school vision and instructional model.
- ☐ Non-instructional duties are minimized in teacher schedules.
- ☐ Teachers are either fully utilized or completing high-priority work.

GOAL AREA #7: LOGISTICAL AND RESOURCE EFFICIENCY

- ☐ The schedule balances facility constraints, particularly for the lunchroom and gym.
- ☐ Courses are fully enrolled (particularly elective classes).
- ☐ Teacher schedules allow for adequate planning and preparation for their specific course load.

Source: Education Resource Strategies[8]

Most importantly, effective master schedules are characterized by an "allocation of time, personnel, and facilities where all stakeholders work collaboratively to support all students at all levels of the [learning] continuum" (e.g., struggling students, students in specialized programs, high-achievers).[9] Consequently, **principals should orient their scheduling efforts around student needs and a broader commitment to equity of academic opportunity.**[10] This involves careful consideration of student performance levels in various subject areas and potential or current participation in a variety of specialized programs and elective coursework, including:[11]

- English learner services;
- Special education;
- Gifted and talented education;
- Subject-specific remedial courses;
- Fine arts and/or music;
- Career and technical education;
- Honors courses;
- International Baccalaureate (IB) courses;
- Advanced Placement (AP) courses; and
- Dual enrollment courses.

Ideally, **master schedules will facilitate student participation in the specific courses and interventions they require to be college- and career-ready while also allowing for the greatest degree of flexibility for students enroll in those elective or advanced courses that most interest them.**[12] All students must be able to participate in courses that allow access to foundational grade-level curricula (i.e., Tier 1 or universal instruction) and be given opportunities to participate in interventions and enrichment activities in line with their educational needs and aspirations (i.e., Tier 2 or targeted interventions and enrichments; Tier 3 or intensive interventions and

Figure C: Complexity in Scheduling Individual Students

Principals can calculate the possible number of course combinations that students may enroll in for a given scheduling unit (e.g., semester) using the formula below. Via this formula, principals can gain some insight into how complex the overall master scheduling and individual student scheduling processes will be in their schools.

$$C(n,r) = \frac{n!}{r!\,(n-r)!}$$

C = number of class combinations
n = classes from which students can choose
r = number of classes that students may choose

Source: Education Advanced, Inc.[15]

enrichments).[13] Simply put, master schedules should minimize conflicts between the timing of required or elective courses and mandated periods for specialized programs in their basic design (e.g., overlapping time for AP Calculus and AP Statistics; overlapping time for special education resource room classes and popular electives).[14]

At the same time, principals and their collaborators must also be realistic about—and candid with students, staff, and families regarding—the complexity of master scheduling and existing limitations in accommodating course preferences beyond the provision of the state-mandated core academic program.[16] While resource constraints (e.g., qualified faculty, lab spaces) will limit the availability of specific courses and, ultimately, result in scheduling conflicts, master schedules should be as flexible as possible to reduce inequities in students' ability to access rigorous learning opportunities that encompass state-mandated coursework at an appropriate level of challenge (e.g., "regular" versus honors sections) and pursuit of their personal areas of interest (e.g., languages other than English).[17]

Alongside these student-focused concerns, **principals should consider scheduling parameters that will diversify and balance class rosters and maximize collaboration time between staff members to improve teachers' ability to meet the needs of students.**[18] This means scheduling classes to facilitate class rosters that reflect the demographics of the larger student population and that maintain viable student-to-teacher ratios based on the demands of the program or discipline.[19] In addition, master schedules should include as much collaborative planning time as possible so that teachers can engage in co-planning and shared professional learning within their grades and disciplines and with staff from other departments.[20] Notably, by assigning teachers a reasonable number of students to teach and by providing collaborative planning time, principals can help ensure that teachers share insights with colleagues about the needs of students—as individuals and groups—and implement effective pedagogies that will benefit students with varying needs and from diverse backgrounds.[21]

Figure D: Important Resources for Master Scheduling in Virginia

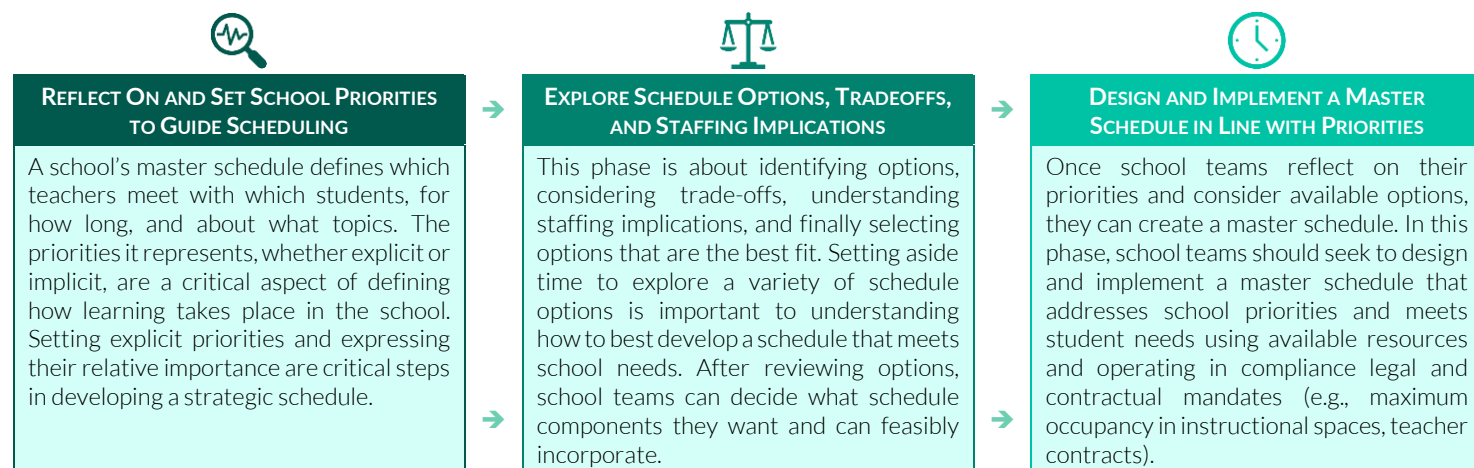|	
Virginia schools must ensure that master schedules adhere to the Regulations Establishing Standards for Accrediting Public Schools in Virginia (linked here). These regulations include a number of mandates that schools are legally obligated to follow, including the provision of academic coursework aligned to Virginia's Standards of Learning for the covered grades and equitable accommodation of students with specialized learning needs in the school's academic program (e.g., English learners, students with disabilities).	The Virginia Department of Education's Master Schedule Collection (linked here) includes technical documents and presentations related to course scheduling and other complementary items. Topics range from licensing requirements for teachers leading online courses, to gathering data for compliance with state and federal regulations, to student placement scenarios. Such resources can support Virginia's schools and school principals develop schedules that adhere to established state mandates and policies.

Source: Virginia Department of Education[22]

Procedures to Develop Effective Master Schedules

Development of a master schedule for any given school year is a process that requires multiple actions and collaboration among staff—which will likely extend across a large portion of the preceding school year.[23] Indeed, creating an effective master schedule for the following school year is a process that principals and their staff should devote significant time and energy toward from the earliest months of the current school year.[24] Thus, principals should begin collaboration with other school leaders and teaching staff as early as possible in the calendar (e.g., January).[25]

Below, Figure E outlines the broader phases of investigation and action that principals and school staff should engage in to formulate the most effective master schedule. Such action items include setting priorities for scheduling based on school and district outcomes and philosophies, exploring multiple options for schedule construction based on student needs and resource availability, and selecting and finalizing the selected master schedule model for the upcoming school year.[26] Principals should avoid completing this work in isolation, and instead, they should form a team composed of administrators, teachers, guidance counselors, and other staff who can contribute to the process.[27] Mobilizing a team of educators from different departments and with diverse roles will help ensure the greatest amount of opportunity for all students to receive effective instruction in core curricula alongside opportunities for academic enrichment, targeted and intensive interventions, and engagement in elective coursework.[28]

Figure E: Core Phases of the Master Scheduling Process

REFLECT ON AND SET SCHOOL PRIORITIES TO GUIDE SCHEDULING	EXPLORE SCHEDULE OPTIONS, TRADEOFFS, AND STAFFING IMPLICATIONS	DESIGN AND IMPLEMENT A MASTER SCHEDULE IN LINE WITH PRIORITIES
A school's master schedule defines which teachers meet with which students, for how long, and about what topics. The priorities it represents, whether explicit or implicit, are a critical aspect of defining how learning takes place in the school. Setting explicit priorities and expressing their relative importance are critical steps in developing a strategic schedule.	This phase is about identifying options, considering trade-offs, understanding staffing implications, and finally selecting options that are the best fit. Setting aside time to explore a variety of schedule options is important to understanding how to best develop a schedule that meets school needs. After reviewing options, school teams can decide what schedule components they want and can feasibly incorporate.	Once school teams reflect on their priorities and consider available options, they can create a master schedule. In this phase, school teams should seek to design and implement a master schedule that addresses school priorities and meets student needs using available resources and operating in compliance legal and contractual mandates (e.g., maximum occupancy in instructional spaces, teacher contracts).

Source: Education Resource Strategies[29]

While completing these three procedural phases, principals and their collaborators should use the guiding questions included in Figure F to ensure that the developing master schedule addresses essential priorities.[30] The listed questions will help principals and their teams determine how well the master schedule aligns with school goals and provides equitable access to robust learning opportunities for all students.[31]

Figure F: Guiding Questions for Master Scheduling

FOCUS AREA	GUIDING QUESTIONS
Fulfillment of Priorities	• Is there a clear link from the schedule to the school goals? • Does the schedule accomplish the scheduling vision that the team created? If not, why? Was that a deliberate choice? • Are there short blocks of time in the schedule (e.g., under 30 minutes)? If so, does the principal believe that time can be used effectively? • What would a student's experience be in the schedule? [*Think of a specific student and follow them through their day.*] • Does the schedule create unnecessary transitions? • In middle and high school, do period lengths align with student and teacher needs and abilities? [*Consider content needs, student attention spans, and teacher capacity to plan effective lessons.*]
Instructional Time	• How much time is spent in core subjects? Specials and electives? Does this align with student need and school priorities? • How much time is spent on each subject? Does this align with student need and the school's priorities? • In what ways does the schedule create flexibility to adjust time or class/group size depending on student need? Is flexibility a priority? • What are the highest priority subjects/classes? Are they scheduled during the "right" portions of a student's day?

FOCUS AREA	GUIDING QUESTIONS
Intervention and Enrichment	• Are intervention and enrichment periods staggered throughout the day or happening across the school at the same time? Is the principal aware of the trade-offs associated with each model? • Which teachers and staff will be utilized during intervention and enrichment? How are they going to be used, and how are they going to be set up to be successful? Will their assignments be aligned with their expertise? • Are teachers used in capacities beyond their assigned course load, content expertise, or professional qualifications? • How often will students be grouped/regrouped? • When will teams of teachers plan together for intervention and enrichment?
Planning Time	• How much total planning time does this schedule create for teachers? • Of the total planning time, how much is going to be used for collaboration? Independent planning? Are there at least 90 minutes of collaborative planning time for teachers per week? • How long are the collaborative team planning blocks? What are students doing during this time? • Who is facilitating collaborative planning time, and is it clear from the schedule that that person is also available during that time? • Which teams of teachers are able to collaborate together in the schedule? Content area? Grade level? How often are these teams collaborating? • Are support staff able to collaborate with teams of teachers they support?
Support Services	• How are special program teachers (e.g., special education teachers) and support service providers (e.g., school psychologists) being utilized?

Source: Education Resource Strategies[32]

Supplemental Resources

The following resources provide additional information on effective strategies and procedures for principals to support effective master scheduling practices at their schools beyond that already included in this info-brief.

Figure F: Resources and Tools to Support Master Scheduling

RESOURCE	PUBLISHER	TYPE	SHORTENED URL	QR CODE
Building New Master Schedules for Hybrid Learning[33]	Minnesota Rural Education Association	Webpage	https://qrgo.page.link/DS5Hw	
Common Planning: A Linchpin Practice in Transforming Secondary Schools[34]	Academy for Educational Development	PDF report	https://qrgo.page.link/tn1rc	
Creating a Student-Centered Schedule That Works[35]	Michigan Virtual	Webinar	https://qrgo.page.link/hU47v	
Elementary School Scheduling Template[36]	Education Resource Strategies	Excel workbook	https://qrgo.page.link/9p4PG	
Episode 28: How Well Does Your Master Schedule Reflect Your Core Values, Mission, and Vision[37]	School Leadership Reimagined	Podcast	https://qrgo.page.link/s3tUu	

RESOURCE	PUBLISHER	TYPE	SHORTENED URL	QR CODE
Finding Time for Collaborative Planning[38]	Education Resource Strategies	PDF report	https://qrgo.page.link/KrifP	
Inclusive Practice Tool: Master Schedule Review[39]	Massachusetts Department of Elementary and Secondary Education	PDF report	https://qrgo.page.link/TkwJ5	
Information Brief: RTI Scheduling Processes for Middle Schools[40]	National Center on Response to Intervention	PDF report	https://qrgo.page.link/f1RvY	
Master Schedule Guide[41]	College and Career Academy Support Network, University of California at Berkeley	Online resource	https://qrgo.page.link/X6oEf	
MTSS Master Schedule Form[42]	SWIFT Education Center, University of Kansas	Excel workbook	https://qrgo.page.link/eLqgU	
Promising and Effective Practices in Student-Centered Scheduling: Lessons and Artifacts from New York City Transfer Schools[43]	Springpoint and Eskolta School Research and Design Inc.	PDF report	https://qrgo.page.link/cSaaU	
Resource Guide for Elementary Master Scheduling[44]	Montgomery County Public Schools (MD)	PDF report	https://qrgo.page.link/PDkFE	
Secondary School Scheduling Template[45]	Education Resource Strategies	Excel workbook	https://qrgo.page.link/WqwRx	
Staffing Tool[46]	Education Resource Strategies	Excel workbook	https://qrgo.page.link/iGPe9	
Strategies for Scheduling: How to Find Time to Intensify and Individualize Intervention[47]	National Center on Intensive Intervention, American Institutes for Research	PDF report	https://qrgo.page.link/Stmdq	
Video Series: Leading Through the Master Schedule[48]	Unlocking Time | Always Be Learning, Inc.	Video library	https://qrgo.page.link/jeJBb	

Source: QR Code Generator[49]

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