Cybersecurity Rubric

The Cybersecurity Rubric (CR) serves as a guide to review a school's current cybersecurity level using the cybersecurity framework for education, which combines cross-sector standards with educational systems. The framework has five (5) functions and 23 Categories. Each Category is evaluated against the Maturity Model, which ranges from Initial (Level 1) to Optimized (Level 5). The category's maturity levels determine the school system's overall Maturity Level found in the Results tab.

Instructions: Evaluate the schools sytem's cybersecurity Maturity Level for every Category.

This Cybersecurity Rubric is regularly reviewed and updated to reflect current trends. For easy access to the latest version, make a CR copy from the following URL: https://tinyurl.com/CRSelfAssessment. Be sure to create a new file copy of the Cybersecurity Rubric each time you conduct a system-wide cybersecurity evaluation.

March 2023

www.cybersecurityrubric.org

NIST Function	LEVEL 1: INITIAL Little to no efforts for identifying cybersecurity risks.	LEVEL 2: REPEATABLE Risk identification processes exist but are in the beginning stages.	LEVEL 3: DEFINED Risks are identified and managed in a standard, well defined process.	LEVEL 4: MANAGED Risks are identified and regularly proactively monitored.	LEVEL 5: OPTIMIZED Risks are continuously monitored & used for system-wide decisions.
IDENTIFY					
ASSET MANAGEMENT					
	Asset inventory processes are ad hoc, inconsistent, and/or reactive and may be out of date. **Controls** for asset protection are lacking or need improvement.	**Asset inventories** are current & processes are consistent. **Protection controls** for asset protection are transitioning from being reactionary. **Improvement initiatives** are underway.	Meets REPEATABLE Maturity Level **AND asset inventories** are current and document asset's full life cycle. **Data classifications** are defined per state standards, regulations, and legal requirements. **Protection Controls** are maintained and off-site asset security measures are in place, including software installs & asset transfers.	Meets DEFINED Maturity Level **AND asset inventory** processes are highly managed with defined metrics; effectiveness and accuracy are statistically analyzed. Asset **compliance** is evaluated regularly, and noncompliance is identified through root-cause analysis. **Protection controls** are tested & results influence improvements.	Meets MANAGED Maturity Level **AND** efficient, effective, and innovative **asset inventories** are in place system-wide with best practice process improvements. Inventory management is well integrated with the current and future needs aligned with system-wide objectives and risk strategy.
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BUSINESS ENVIRONMENT					
	Risk mitigation defenses are not clearly defined. **Third-party data** sharing agreements are not formal. **Sensitive data** processes need improvement. **Risk management** decisions are not included in cybersecurity initiative planning.	**Operational processes** and responsibilities are consistent but mostly adhoc or reactive. Some contractual **data sharing** agreements with third parties are formalized. **Sensitive data** processes are not routinely measured or enforced.	Meets REPEATABLE Maturity Level **AND risk mitigation** operations are documented. **Third-party data** sharing agreements are formalized. **Sensitive data** processes include privacy and security requirements. **Controls** are in place to prevent loss, damage, or theft. **Strategic plans** address cybersecurity roles, responsibilities, and risk management decisions.	Meets DEFINED Maturity Level **AND performance controls** are in place at department levels to measure and evaluate system-wide risk. **Resiliency** measures to anticipate, prepare for, and recover from cyber events are in place and are a priority. Regular **cybersecurity assessments** are conducted to verify optimal performance levels. **Strategic planning** & budget allocations are fueled by needs assessment data.	Meets MANAGED Maturity Level **AND strategic plans** inform cybersecurity roles, responsibilities, and risk management decisions. **Controls** in place are effective, systematic, and responsive. Fact-based, **cybersecurity assessments** are optimized based on an organizational-wide analysis.
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GOVERNANCE					
	Cybersecurity processes are ad hoc, inconsistent, or reactive. **Responsibilities** for the development and implementation of data privacy and cybersecurity policies and practices need to be defined. **Resources** and budgets need to be allocated to meet cybersecurity and data privacy needs of the school system.	**Cybersecurity processes** are developing. Institutional knowledge of the value and purpose of cybersecurity objectives is becoming a priority. There are "go-to" staff for institutional knowledge, and they are consulted when information is needed. **Responsibilities** are being defined and resources and budgets are being allocated. **Processes** are in the early stages of alignment with the basic needs being identified to meet cybersecurity and data privacy needs of the school system.	Meets REPEATABLE Maturity Level **AND cybersecurity processes** are documented, approved by leadership, and reviewed annually with strict adherence to the TLE practice areas. **Designated staff** maintain data privacy and cybersecurity policies. **Privacy resources** are allocated system-wide. **Compliance** processes are documented for all federal, state, and local regulations. Security audits are conducted annually by outside independent parties, and results are systematically evaluated.	Meets DEFINED Maturity Level **AND** system-wide **cybersecurity governance** infuses stewardship & trust with strategic plans, policies, procedures, leadership evaluations, and risk management strategies. The school's **governing body** possesses cybersecurity knowledge to review and monitor, and assess cybersecurity-related performances, objectives, and action plans. The **TLE practice** areas are reviewed annually and improvement initiatives are based on evaluation results.	Meets MANAGED Maturity Level **AND** all **cybersecurity measures & effectiveness** are aligned with strategic plans and are continually monitored, reviewed, and improved. Governance processes are audited annually to assess federal, state, and local regulatory compliance. School system is working towards or has obtained the **TLE seal** mark of distinction.
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RISK ASSESSMENT					
	Risk management capacity is lacking. **Processes** are not documented, ad hoc, inconsistent, or reactive. **Vulnerabilities** are exposed and impacts are unknown. **Collaborative approaches** to risk identification and management are lacking or not evident.	**Leadership** demonstrates awareness of the importance of cybersecurity risk to organizational operations, assets, and individuals. The transition from a **reactive** to **proactive** approach to risk management is evident. Processes to **identify** vulnerabilities and **mitigate** risks are being developed. Collaborative problem solving and seeking information from **information sharing** forums are being prioritized.	Meets REPEATABLE Maturity Level **AND** processes to **identify** vulnerabilities, **mitigate** and **minimize** threats, and determine potential instructional and business operations **impacts** are documented and built into daily operations. Threat intelligence from **information sharing** forums and sources is collected. Information processing facilities are **secure**. Processes for **backup** and **recovery** systems are documented, tested, and evaluated at least annually.	Meets DEFINED Maturity Level **AND** established **risk management strategy** is in place with integrated improvements beyond compliance regulation requirements Priority is given to building **knowledge** about the risk management process and raising **awareness** about the needed capabilities to effectively conduct risk assessments and manage risk.	Meets MANAGED Maturity Level **AND** risk assessment includes a focus on **disciplined optimization** and continual **process improvement**. Qualified cybersecurity **practitioners** are employed to measure and assess every aspect of the school system for possible cybersecurity issues and improvement opportunities. A fact-based, evaluation **cycle of improvement** is optimized.
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RISK MANAGEMENT STRATEGY					
	The organization's risk **priorities**, **constraints**, risk **tolerances**, and **assumptions** are not clearly defined. A comprehensive **risk management strategy** is lacking or nonexistent. Processes are not documented or aligned to support the **architecture** and strategic **roadmap**.	The organization's risk **priorities**, **constraints**, risk **tolerances**, and **assumptions** are being developed. Processes to develop a comprehensive **risk management strategy** are being established and used to support operational risk decisions. Risk management is transitioning from **reactive** to **proactive**.	Meets REPEATABLE Maturity Level **AND** risk assessment **management** processes are documented and agreed to by organizational stakeholders. Risk **assessment** processes include identifying new threats, vulnerabilities, and conditions that may impact the system's security. Risk assessment **results** are regularly reviewed. Tracked **action plans** include disseminating risk assessment results to stakeholders.	Meets DEFINED Maturity Level **AND** the shared risk management **strategy** and desired **response patterns** are culturally embedded and well understood. All **stakeholders** are committed to detecting and responding to changing tactics and techniques of cybersecurity threats and vulnerabilities.	Meets MANAGED Maturity Level **AND** the risk management **strategy** is fully deployed without significant weaknesses or gaps across the school system. Processes and lessons learned are regularly shared with the **education market sector** community.
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SUPPLY CHAIN					
	Processes to manage **supplier** risks are not documented and are ad hoc, inconsistent, or reactive. A comprehensive **inventory** of suppliers and third-party partners and the identification of the information systems, components, and services provided is lacking or nonexistent.	An **inventory** of suppliers and third-party partners with processes to identify, assess, and manage supply chain risks is being developed. A systematic approach to evaluating third-party **key processes** is evident. The Improvement initiatives with suppliers to ensure **compliance** are being developed.	Meets REPEATABLE Maturity Level **AND** risk assessment **management processes** include suppliers and third-party partners of information systems, components, and services. All processes are **identified**, **documented**, **prioritized**, and routinely **assessed** using audits, test results, or other forms of evaluations to confirm suppliers and partners are meeting their contractual obligations.	Meets DEFINED Maturity Level **AND** suppliers and third-party partners conduct routine tests to evaluate **compliance** and the **adequacy** and **effectiveness** of all implementations. **Results** from tests ensure all policies, processes, and controls are managed as expected by ensuring the appropriate cybersecurity levels of control. Effective corrective **actions** are taken to address any weaknesses. Independent **audits** and valid **certifications** of proven performance are required.	Meets MANAGED Maturity Level **AND** supply chain **risk processes** are advancing, optimizing, and progressive. Cyber **defenses** are maximized as evidenced by a comprehensive supply chain security program. Suppliers and partners are chosen based on risk and mission **impact**. Response and recovery **planning** and **testing** are conducted with suppliers and third-party providers at least annually. Results are evaluated and used for **continuous improvement**.
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PROTECT					

ACCESS CONTROL

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Access control processes and protocols for physical and remote access are not established and documented. **Multi-factor authentication** has not been implemented. **Data protection** measures are inconsistent. **Network integrity** processes are not defined. **Account review** processes for user, supplier, and system accounts are not defined. Conditions for **group** and **role membership** are not defined.	**Access control** processes and protocols for physical and remote access are documented but not routinely managed. At least one **multi-factor authentication** method is in place. **Data protection** measures are documented. **Network integrity** processes are defined. **Account review** processes for user, supplier, and system accounts are defined but not routinely enforced. Conditions for **group** and **role membership** are defined.	Meets REPEATABLE Maturity Level **AND** compliant **data protection measures** are maintained. **Network integrity** processes, protections, and controls are routinely enforced. **Account review** processes are routinely conducted. **Account managers** are assigned. Conditions for **group** and **role membership** are routinely met.	Meets DEFINED Maturity Level **AND access control** processes, protocols, and protection measures are systematic and well deployed. **Multi-factor authentication** methods are routinely evaluated for efficacy. **Network integrity** and **account review** processes are routinely evaluated for state and federal compliance. **Evaluation** processes include access control risk mitigation.	Meets MANAGED Maturity Level **AND data-driven** decisions to mitigate and avert risk in alignment with best practices are routinely made. The **overall approach** to cybersecurity awareness, training, and implementation is fully deployed without significant weaknesses or gaps.
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AWARENESS & TRAINING

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Processes to ensure all staff and students with **user id** accounts are undocumented and are ad hoc, inconsistent, or reactive. Cybersecurity awareness **training** is not mandatory or scheduled for new or existing users. Specific **role-based** security training to designated personnel is inconsistent or nonexistent. **Personnel** to document and monitor information system security training activities are not defined or designated. A **records retention policy** is not defined.	Processes are being developed to ensure all staff and students with **user id** accounts are adequately trained. Cybersecurity awareness **training** improvement initiatives are being developed. Specific **role-based** security training for personnel with assigned security roles and responsibilities is defined. **Personnel** to document and monitor information system security training activities are identified. A **records retention policy** is defined.	Meets REPEATABLE Maturity Level **AND** role-based security training is provided before authorizing access to the information system or performing assigned duties. **Personnel** to document and monitor information system **security training** activities are active in their designated roles. Training records are retained based on the **records retention polic**y.	Meets DEFINED Maturity Level **AND** regular cybersecurity **alerts**, training **campaigns**, and **simulated attacks** are issued. Staff and student **training progress** is routinely tracked and updated as needed based on available data. Leadership is involved in continuous process and training monitoring. Designated staff continually monitors, measures, and enforces training **adherence**.	Meets MANAGED Maturity Level **AND** cybersecurity **awareness** and **training** methods are focused on continually improving performance through incremental and innovative optimization. **Metrics** to measure training performance objectives are established. A data-based **evaluation cycle** of improvement is optimized. Leadership is instrumental in designing, implementing, revising, and monitoring **training initiatives** and **progres**s.
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DATA SECURITY

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Processes to manage and protect **stored** and **transmitted data** are not documented or are ad hoc, inconsistent, or reactive. Processes and policies to **protect** data and information **confidentiality**, **integrity**, and **availability** of information and records are nonexistent or lacking. **Leadership** demonstrates an incomplete understanding of data protection and risk management.	**Stored** and **transmitted data** is managed and monitored consistently. Processes are **defined**, **repeatable**, and **scalable**. **Leadership** demonstrates sufficient understanding of data protection and risk management. Formal process definitions and protocol for **managing** and **monitoring** data and information are being developed and documented.	Meets REPEATABLE Maturity Level **AND** data includes mitigating controls, protections, and innovative technologies. **Data management** and **protection** processes are routinely enforced. **Data records** are formally managed and are consistent with implemented risk management strategies. **Exceptions** for non-encryption are routinely evaluated. Dedicated **technology staff** monitors and investigates alerts.	Meets DEFINED Maturity Level **AND** risk evaluation processes and measures extend beyond compliance requirements and regulations. **Risks** are routinely identified, analyzed, monitored, and controlled . **Results** from evaluation and monitoring processes and activities are used to drive improvements. **Technology staff** demonstrates a high degree of skill and knowledge in managing and monitoring **stored** and **transmitted dat**a.	Meets MANAGED Maturity Level **AND** state-of-the-art **data security solutions** are used to provide enhanced visibility into system vulnerabilities. Innovative **integrity-checking mechanisms** are used to secure all information systems. Cybersecurity **controls** are adapted to meet the challenges of a dynamic information technology (IT) security environment. **Technology staff** demonstrates consistent ownership of proactive risk assessment and mitigation measures.
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INFORMATION PROTECTION & PROCEDURES

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Coordinated processes to manage the **protection** of information security and assets are lacking. **Evaluation** and **improvement** of key processes lack sufficient supporting documentation and definition. Processes addressing the **baseline configuration** of information technology and instructional technology systems are not documented or are ad hoc, inconsistent, or reactive. **Business continuity** and **recovery** plans have not been developed.	Processes addressing purpose, scope, roles, responsibilities, and coordination required to manage the protection of **information security** and **assets** are being planned and documented. **Security policies** are defined. A proactive, systematic approach to **evaluation** and improvement of **key processes** is being planned and implemented. **Business continuity** and **recovery** processes and protocol are being defined.	Meets REPEATABLE Maturity Level **AND** coordinated processes to document a **baseline configuration** of information technology and instructional technology systems are maintained and routinely employed. **Backups** of information are routinely conducted, maintained, and tested. **Policies** are defined and enforced for purging, archiving, deleting, and restoring data. **Incident response**, **business continuity**, and **recovery plans** are defined, implemented, and routinely evaluated.	Meets DEFINED Maturity Level **AND** leaders are committed to implementing and monitoring adopted information protection processes. **Governing authorities** allocate resources needed to manage protection processes. **Designated staff** assigned to manage information security and asset protection processes is comprised of dedicated professionals.	Meets MANAGED Maturity Level **AND** data security is optimized based on **response** and **recovery plan** testing results. **Results** are systematically evaluated and improved. **Improvements** are well integrated into the baseline configuration of information technology systems. A continuous **cycle of analysis** is evident. Sophisticated **cybersecurity standards** and best practices guide data security improvements. **Coordination** between and among leaders and governing authorities is apparent.
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MAINTENANCE

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Processes to **maintain** and **repair** information systems and applications in accordance with vendor specifications and requirements are lacking. Maintenance **systems** and **tools** are not controlled. Maintenance **activities** are primarily reactive and are sporadic and/or inconsistent. **Security controls** to verify functionality after maintenance lack definition. **Records** of maintenance activities are ad hoc, inconsistent, or incomplete. Processes to prevent **unauthorized access** need definition and/or improvement.	Systems and tools used to **maintain** and **repair** information systems and applications are routinely and consistently implemented per vendor specifications and requirements. **Security controls** are identified, documented, and implemented. Maintenance activity **records** are consistently kept. Processes are **repeatable** as the school system employs qualified "go-to" staff members for institutional knowledge. Formal definition and documentation of **proactive** and **preventative** maintenance activities is underway.	Meets REPEATABLE Maturity Level **AND** documented processes to **maintain** and **repair** information systems and applications are implemented in accordance with **vendor specifications** and **requirements**. Maintenance **systems**, **tools, and activities** are approved, controlled, tested, and monitored. Post-maintenance **security controls** are routinely tested. Detailed **records** of maintenance activities are logged and retained. **Remote maintenance** of system assets is routinely approved, logged, and performed.	Meets DEFINED Maturity Level **AND maintenance** of institutional information systems and applications is managed with acute care by designated, highly qualified staff. Regular maintenance is performed and verified to ensure all **systems** and **components** are effectively protected. Designated staff routinely monitors, measures, and enforces **adherence** to maintenance requirements and refresh cycles. The leadership chain of command is flexible to ensure **resources** are made available if there is risk of noncompliance or poor performance.	Meets MANAGED Maturity Level **AND information systems** and **applications** are implemented in a proactive life cycle of maintenance and repair. **Continuous improvement** focused on efficiency and effectiveness is optimized and flexible. **Change management** is strategically planned and consistently prioritized. Designated technology staff is thoroughly trained in cybersecurity and prioritizes routine, proactive **system maintenance** to meet and exceed security objectives.
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PROTECTIVE TECHNOLOGY

	LEVEL 1: INITIAL	LEVEL 2: REPEATABLE	LEVEL 3: DEFINED	LEVEL 4: MANAGED	LEVEL 5: OPTIMIZED
	Processes to protect student and staff **devices** are lacking, or are ad hoc, inconsistent, or reactive. Advanced **protective technologies** to shield devices from identified and potential threats are lacking or nonexistent. **Security updates** are not conducted in a timely, scheduled manner. **Time** for information technology (IT) staff to capture and review audit logs needs is sparsely allocated or nonexistent. Additional protection measures for **removable media** and **network infrastructure components** are needed.	Processes to protect student and staff **devices** are being defined. Advanced **protective technologies** to shield devices from identified and potential threats are being researched and identified. **Resources** and **budgets** are being allocated. Qualified information technology (IT) staff are designated to maintain protection measures and **security updates** focused on ensuring the security and resilience of systems and assets. Protection measures for **removable media** and **network infrastructure** components are being determined.	Meets REPEATABLE Maturity Level **AND** processes to protect student and staff **devices** are documented and implemented. Advanced **protective technologies** to protect devices are in place. Timely **installation** of security updates is applied. **Audit log records** are determined, documented, implemented, and reviewed in accordance with defined practices and policies. **Removable media** is protected, and use is restricted according to documented and implemented practices and policies. **Communications** and **control networks** are protected.	Meets DEFINED Maturity Level **AND** the approach for implementing **protective technology** is well deployed, with no significant gaps. Best practices drive performance levels, resulting in successful cybersecurity **sustainability**. Enhanced practices to protect changing tactics, techniques, and vulnerabilities of advanced persistent threats are reviewed and evaluated. **Corrective actions** are routinely taken to address identified weaknesses. Communications and control networks are routinely monitored. **Automated checks** are in place to avert cyber attacks.	Meets MANAGED Maturity Level **AND** the effects of deployed protective technologies are measured using **key indicators**. **Evaluation results** are used to guide improvement activities. **Protective technologies** are standardized across the organization. Processes are enhanced by using sophisticated **protective technologies** to detect and respond to advanced threats and vulnerabilities. Protective technologies aided by **automated checks** are **resilient** with an end goal in mind to ensure system availability and cyber protection is sustained at 100%.
	☐	☐	☐	☐	☐

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DETECT					
	ANOMALIES & EVENTS				
	Processes to collect, review, and correlate **event data** from a cybersecurity attack are not documented or are ad hoc, inconsistent, or reactive. A **baseline** of network operations and expected data flows for staff, students, and systems is nonexistent or lacking. Technology staff assigned to analyzing the **impact** of events are needed. The capacity to detect **anomalies** is lacking.	**Anomalous activity** is detected consistently in an overall approach but is mostly reactive. Processes to collect, review, and correlate **event data** from a cybersecurity attack are being developed and improvement initiatives are being addressed. Technology staff are assigned to analyze the **impact** of events and the school system is transitioning from being reactionary. Staff are developing their skills in learning about **pattern recognition** and attack targets and methods.	Meets **REPEATABLE** Maturity Level **AND** documented processes to collect, review, and correlate **event data** from multiple sources and technology systems are in place. A **baseline** of network operations and expected data flows is established and managed. **Evidence collection** and **forensic procedures** are documented and in place. Designated technology staff routinely analyze the **impact** of events. Detected **anomalies** are analyzed via a formalized process. **Pattern recognition** technologies are used.	Meets **DEFINED** Maturity Level **AND** rigorous **analytics** generated from anomalies and trends at the subprocess level of the school system's applications, systems, and databases are used. Formal analysis is conducted of **patterns** of information technology activities outside of normal behavior. Underlying causes for **vulnerabilities** are identified through root-cause analysis. Issues related to **vulnerability identification** are tracked and reported to relevant managers.	Meets **MANAGED** Maturity Level **AND** advanced processes generating immediate results are used to identify and detect **anomalies** and **events** and trigger rapid response. Cybersecurity technologies are based on **threat intelligence** combined with **data analytics** to segregate normal behavior from abnormal activity. **Proactive technologies** alert unauthorized access or suspicious behavior in real time.
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	SECURITY CONTINUOUS MONITORING				
	Processes to actively manage all **assets** are nonexistent or incomplete. Processes to detect, remove, and/or remediate **unauthorized** and **unmanaged assets** are ad hoc, incomplete, or reactive. The **review** of accounts, firewall rules, and penetration tests of external-facing systems are not consistently conducted. External **vulnerability scans** performed at least quarterly are nonexistent.	Processes to actively manage **assets** are primarily reactive. A systematic approach to evaluation and improvement of **key processes** for detecting, removing, and/or remediating **unauthorized** and **unmanaged assets** are being formulated. Capacity for **continuous improvement** is limited. Schedules for regular external **vulnerability scans** are being developed.	Meets **REPEATABLE** Maturity Level **AND** processes to actively manage **assets** and to detect, remove, and/or remediate **unauthorized** and **unmanaged assets** are routinely implemented. **Continuous improvement** cycles are routinely implemented and evaluated. Quarterly vulnerability scans are regularly conducted. Annual penetration **tests** are regularly conducted. Systematic **account reviews** are routinely performed.	Meets **DEFINED** Maturity Level **AND** continuous **monitoring processes** to rapidly detect cybersecurity risks in real time are embedded in daily operations. **Monitored performance** of critical security processes using forensics, root cause analysis, threat intelligence, and incident response is prioritized. Effective **correction actions** are taken to address identified weakness or vulnerabilities.	Meets **MANAGED** Maturity Level **AND** continuous **security monitoring** uses data to verify the effectiveness of proactive measures and optimizes real-time threat detection to aid timely mitigation, improve cybersecurity maturity, and reduce risk. **Gap analyses** via multiple technologies are conducted to identify vulnerabilities, develop failsafe measures, and drive process improvement.
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	DETECTION PROCESS				
	Processes to **prepare**, **detect**, and quickly **respond** to a cybersecurity attack need improvement or are nonexistent. Individual and collective **responsibilities** need to be defined. Staff and suppliers of **third-party** technologies and systems need training. **Monitoring** of the network, malicious code, unauthorized access, devices, and software is ad hoc, inconsistent, or reactive.	Processes to **prepare**, **detect**, and quickly **respond** to a cybersecurity attack are being developed. Individual and collective **responsibilities** are in the process of being defined. Risk detection and mitigation steps are consistency applied. Training is being developed for staff and suppliers of **third-party** technologies and systems. Priority is given to proactive network monitoring.	Meets **REPEATABLE** Maturity Level **AND** processes are defined and continually improved. Practices are in place to **prepare**, **detect**, and quickly **respond** to a cybersecurity attack. Staff and suppliers of **third-party** technologies and systems are properly trained. The **network** is routinely monitored for potential threats. **Malicious code** is detected. **Monitoring** for unauthorized access is performed. Cybersecurity **event detection** information is communicated.	Meets **DEFINED** Maturity Level **AND** an established **risk management framework** is used to detect, measure, and evaluate risk. Sophisticated, extensive **detection** techniques are employed, reviewed and routinely measured for effectiveness. Enhanced **detection** and **responses** practices are routinely implemented and prioritized. Detection process **improvement initiatives** are based on evaluation results. A broad **awareness** of cyber event intelligence is shared.	Meets **MANAGED** Maturity Level **AND** the **capabilities** of all information technology (IT) staff, processes, and technology are regularly tested. **Test results** are evaluated using detailed analysis to determine incident **root cause** and the **correlation** between the incident management and other related processes. The improvement **evaluation cycle** is optimized using lessons learned, innovation, and best practices. The **detection process** approach is well integrated into current and future cybersecurity needs.
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RESPOND					
RESPONSE PLANNING					
	Approved processes to maintain a comprehensive cybersecurity **incident response plan** are lacking or nonexistent. Designated **staff** responsible for developing and implementing of the incident response plan have not been identified and/or trained. ☐	An **incidence response** plan is documented. **Improvement** is a priority as evidenced in strategic plans. The beginnings of a **systematic approach** to evaluation and improvement of key processes are evident. Appropriate **staff** are designated and trained to ensure timely response to detected cybersecurity events. ☐	Meets REPEATABLE Maturity Level **AND** a comprehensive, formal cybersecurity **incident response** plan is documented and annually reviewed. Designated **staff** are responsible for participating in the development and implementation of the practices outlined in the plan. In-house and third-party Scenario-based plan **testing** is routinely conducted. **Results** are systematically evaluated. ☐	Meets DEFINED Maturity Level **AND** a customized, scenario-based cyber event **playbook** is used to measure and evaluate risk. **Business continuity**, **resilience**, and **agility** are prioritized and incorporated in scenarios. Planning time is allocated to evaluate **impact**, **response**, and **recovery**. **Practice** is incorporated to strengthen recovery plans. Findings through practice are instrumental in generating **action plan**s. ☐	Meets MANAGED Maturity Level **AND** the documented, reflective, flexible **response planning** process pervades organizational culture and undergoes continuous improvement on an annual basis, or more frequently where possible. Results from feedback drive change and aid "lessons learned" **retrospective** sessions and initiatives. ☐
COMMUNICATIONS					
	Processes to define orderly **response activities** are lacking or nonexistent. Criteria for **incident reporting** is not clearly defined or is primarily reactive. Communication processes for **incident reporting** are unclear or nonexistent. ☐	Processes to define orderly **response activities** are being developed. Proactive **coordination** with internal and external stakeholders is improving. Consistent **criteria** for incident reporting is being determined. A **systematic approach** to evaluation and improvement of key processes is being designed. ☐	Meets REPEATABLE Maturity Level **AND** processes to ensure orderly **response activities** are defined and shared. **Coordination** with stakeholders is in line with response plans. Information is shared with leadership and internal and external stakeholders to achieve transparent **situational awareness**. ☐	Meets DEFINED Maturity Level **AND** processes are documented in a managed cybersecurity **incident communication plan**. Incident **responsibilities** are assigned to designated staff members. Defined **criteria** are used to measure the success of communications. **Evaluation** of the communication process is periodically conducted. Evaluation **results** drive tracked improvement initiatives. ☐	Meets MANAGED Maturity Level **AND** communications are **optimized** through collaboration with external cybersecurity and privacy groups and associations and solution providers. Cybersecurity **alerts** and **recommendations** are obtained from and shared with external sources. **Response activities** are optimized using best practices, innovative processes, and technological aids. ☐
RESPONSE ANALYSIS					
	Processes to **analyze** incidents are insufficient. Adequate response and support for **recovery activities** are ad hoc, inconsistent, or reactive. ☐	A **cross-functional process** is employed to examine incidents. Systematic response and **support** for recovery activities are being developed. **Proactive** evaluation and improvement of key processes is transitioning being prioritized. ☐	Meets REPEATABLE Maturity Level **AND** incidents are analyzed and categorized consistently with **response plans**. **Measures** used in the analysis include compliance with federal and state regulations. Analysis **findings** and **results** are systematically evaluated. Additional **third-party** analysis is conducted. ☐	Meets DEFINED Maturity Level **AND** response **analysis** is culturally embedded and drives design, implementation, and evaluation. Detailed analysis is managed at the subprocess level to understand **causation** and **correlation**. Analysis drives **processes identification** and **inventories** for effectively mitigating risks and determining response levels. ☐	Meets MANAGED Maturity Level **AND** broad **incident analysis** is employed to identify shortfalls and performance gaps and drive process improvement. A team of knowledgeable information technology (IT) staff measure and assess the full **cybersecurity landscape**, analyzing possible issues and identifying improvement opportunities. ☐
MITIGATION					
	A systematic approach to prevent the **expansion** of an event is lacking or nonexistent. Processes or technologies to **mitigate** the effects of and **eradicate** an incident are not defined, and practices are ad hoc, inconsistent, and reactive. ☐	Processes for preventing the **expansion** of an event, **mitigate** its effects, and **eradicate** the incident are defined. The overall **approach** for cyber defense is consistent. **Collaborative** problem solving is used to prevent the expansion of an event. ☐	Meets REPEATABLE Maturity Level **AND** activities are routinely performed to prevent event **expansion**. Processes and technologies to **mitigate** the effects of and **eradicate** an incident are available and practiced. Incidents are **contained**. Identified **vulnerabilities** are mitigated and/or documented as accepted risks. ☐	Meets DEFINED Maturity Level **AND** sophisticated **response mitigation** during a cybersecurity incident is routinely managed using best practices, tools, and techniques. Effective mitigation is used to **isolate** and **block** threats in near real time. Processes are universally **deployed** and **maintained** to manage mitigation and generate data. ☐	Meets MANAGED Maturity Level **AND** risk **mitigation activities** and **technical mechanisms** are proactively and interactively improved. **Roadmap** development is prioritized. Leadership understands the importance of building **resilience**. Resources are made available when **gaps** in capabilities are identified. **Vulnerabilities** are cataloged and **best practices** are collaboratively established. ☐
IMPROVEMENTS					
	An improvement **posture** is not evident or is reactive. Organizational **alignment** and **coordination** of response planning is lacking or needs improvement. **Retrospective** processes for collecting and evaluating data to aid and target improvement are lacking or are not well defined. ☐	**Response activities are in the early stages of transitioning from reactive to proactive. A coordinated response plan including a retrospective "lessons learned" component is being drafted. A step-by-step analysis process is being developed to aid cybersecurity enhancements.** ☐	Meets REPEATABLE Maturity Level **AND** actions taken to **respond** to an incident are routinely analyzed. **Continuous improvement** actions are identified as lessons learned. **Response plans** incorporate retrospective sessions and evaluations. Response **strategies** are regularly updated. ☐	Meets DEFINED Maturity Level **AND** an established **risk management framework** measures and evaluates risk beyond incident response plan requirements. **Deploying** improvement initiatives based on evaluation results is embedded in daily operations. Systematic "lessons learned" **retrospective sessions** follow each cybersecurity incident and are translated into actionable improvements. ☐	Meets MANAGED Maturity Level **AND** response improvement is **deliberate** and based on lessons learned. **Trends** are analyzed to interactively improve response to the dynamic threat and vulnerability landscape. **Automation** technologies continuously monitor and improve effectiveness. Maturity **targets** are compared to education sector best practices and benchmarks for maturity growth. ☐

NIST Function	LEVEL 1: INITIAL Little to no efforts for identifying cybersecurity risks.	LEVEL 2: REPEATABLE Risk identification processes exist but are in the beginning stages.	LEVEL 3: DEFINED Risks are identified and managed in a standard, well defined process.	LEVEL 4: MANAGED Risks are identified and regularly proactively monitored.	LEVEL 5: OPTIMIZED Risks are continuously monitored & used for system-wide decisions.
RECOVER					
	RECOVERY PLANNING				
	Incident plans are nonexistent or lacking. **Recovery** action steps for educational continuity are not determined. If a plan is present, it does not align with strategic **roadmaps** or cybersecurity **objectives**. ☐	**Incident plans** are documented. **Recovery** action steps describe restoration **procedures** with clearly defined **roles and responsibilities**. **Plan execution** is detailed in depth for during and after cyber incidents. ☐	Meets REPEATABLE Maturity Level **AND asset protection**, direct and indirect processes affecting normal **operations**, and evidence of plans being **executed** during or after cyber events are documented. ☐	Meets DEFINED Maturity Level **AND incident plans** are well managed, pre-incident **asset protection and recovery** processes are routinely successful, **business continuity** is tested, leadership and information technology (IT) teams regularly **review** recovery processes, **gap analyses** are completed with identified weaknesses translating to actionable improvement plans. ☐	Meets MANAGED Maturity Level **AND** fully integrated **incident plans** are embedded into daily decision making. **Recovery planning** is optimized using innovative techniques. **Post-recovery** (staged recovery planning or real-time cyber event recovery) includes addressing lessons learned and making improvements to the recovery plan. Leadership is committed to evolving **strategic plans** based on education market sector trends. ☐
	IMPROVEMENTS				
	An improvement **posture** is not evident or is lacking. Improvement is primarily **reactive**. The overall capacity for **recovery** is lacking or limited. Recovery planning **alignment** and **coordination** need improvement. ☐	Improvement is beginning to transition from **reactive** to **proactive**. The overall **capacity** for recovery is limited but growing. **Leaders** demonstrate commitment to improvement. **Budgets** are being allocated to align the school system's enterprise architecture and strategic roadmap to improve a comprehensive cyber recovery plan. ☐	Meets REPEATABLE Maturity Level **AND** actions taken to **restore** business continuity and **protect** assets after an incident are routinely analyzed. Improvement **actions** are identified as lessons learned for continuous improvement. Recovery plans incorporate **retrospective** "lessons learned" sessions and initiatives. Recovery **strategies** are updated. ☐	Meets DEFINED Maturity Level **AND** all stakeholders acknowledge the value of managing a pristine **recovery plan**. The **school system** evaluates incident response performance, identifies challenges, and improves incident response capabilities in strategic plans. Lessons learned and continuous improvement efforts result in an improved cybersecurity **posture** and **readiness** to face future security incidents. ☐	Meets MANAGED Maturity Level **AND** the school system continuously **evaluates** and **improves** recovery processes. **Metrics** are captured and used to evaluate processes and drive improvement. Advanced technology **solutions** are used to assist in all phases of incident recovery. Overall cybersecurity **maturity** and school system **resilience** improve through optimized incident response, business continuity, and disaster recovery planning initiatives. ☐
	COMMUNICATIONS				
	A systematic approach for communicating **restoration activities** is lacking or nonexistent. **Conditions** and **responsibilities** under which the recovery plan is to be invoked are not defined or documented. ☐	Processes are being developed to manage **media interactions**, handling and 'triaging' **communication** requests, and ensuring staff are apprised of **public relations** and **privacy** policies. **Action steps** to reduce damage inflicted by an event are defined. **Communications** include steps for handling data breaks and recovery activities. ☐	Meets REPEATABLE Maturity Level **AND conditions** and **responsibilities** under which the recovery plan is to be invoked are documented. Communication about **restoration** activities and responsibilities are documented. **Public relations**, including reputation restoration after an event, are managed. Recovery **activities** are communicated to internal and external stakeholders, law enforcement agencies, and leadership teams. ☐	Meets DEFINED Maturity Level **AND** a coordinated **communication response** to achieve a balance between the cybersecurity investigation and recovery is managed with concern. Communication **channels** are identified in advance. Communication **templates** derived from a playbook or tabletop exercises are described. Improvement **initiatives** are set forth based on the evaluation results from communication exercises. ☐	Meets MANAGED Maturity Level **AND** recovery **communications** undergo a continuous, cyclical improvement process and include a documented feedback and communication strategy. Feedback **analysis** identifies shortfalls or gaps in performance and drives measurable process improvement. **Transparent** communication is an integrated practice. A **playbook** with predefined communication topics helps to restore order and optimize the communication strategy. ☐