Preparing Today’s Youth for Tomorrow’s World

In a world of rapid change, young people need the right mix of skills to thrive. Access to information is increasing, and memorizing facts is less important today than in the past. Although academic skills remain important, they are not sufficient to foster thoughtful, productive, and engaged citizens. Young people everywhere need to develop a greater breadth of skills to evaluate and apply knowledge in ways that meet the new demands of our changing social and economic landscape.

From: Stanford’s Social Innovation Review
“My Future Ready Classroom”
National Future Ready Framework – 7 Gears
White House Future Ready Summits

With student learning at the center, a district must align each of the seven (7) key categories, or gears, in order to advance toward successful digital learning:

1. Curriculum, Instruction, and Assessment
2. Use of Time
3. Technology, Networks, and Hardware
4. Data and Privacy
5. Community Partnerships
6. Professional Learning
7. Budget and Resources
8. Across the Gears: Collaborative Leadership
Future Ready Schools – New Jersey
School Certification Program

A coalition of NJIT, the NJSBA, and the NJDOE, is a certification program designed to support the organization of schools' and districts' efforts through the national Future Ready Framework to best prepare their students for success in the digital age, while fostering and enabling collaboration both within and between schools and districts throughout the state of New Jersey.

Indicators for FRS-NJ Certification & Resource Links:
• Curriculum, Instruction and Assessment (Theme: Education and Classroom Practice)
• Use of Space and Time (Theme: Education and Classroom Practice)
• Community Partnerships (Theme: Leadership)

http://www.frsnj.org/school-certification

Eastern Regional High School and Berlin schools are already part of this initiative.
Future Ready Framework
Theme: Education and Classroom Practice

Focus on 3 Gears:

• **Curriculum, Instruction and Assessment**
  - What am I teaching?
  - How am I teaching it?
  - Are students learning?

• **Use of Space and Time**
  - Where am I teaching?
  - When am I teaching?

• **Community Partnerships**
  - How can learning be more authentic and have real world results?
Gear 1: Curriculum, Instruction, and Assessment

Through a more flexible, consistent, and personalized approach to academic content design, instruction, and assessment, teachers will have robust and adaptive tools to customize the instruction for groups of students or on a student-to-student basis to ensure relevance and deep understanding of complex issues and topics. Providing multiple sources of high quality academic content offers students much greater opportunities to personalize learning and reflect on their own work, think critically, and engage frequently to enable deeper understanding of complex topics. Data are the building blocks of diagnostic, formative, and summative assessments—all of which are key elements in a system where learning is personalized, individualized, and differentiated to ensure learner success.

Elements of this Gear:

- 21st Century Skills/Deeper Learning
- Personalized Learning
- Collaborative, Relevant, and Applied Learning
- Leveraging Technology
- Assessment—Analytics Inform Instruction

Your District provided the following Curriculum, Instruction, and Assessment vision:

Engage students with digital learning projects that promote 21st century skills, standards-based content knowledge and elements of deeper learning (e.g., critical thinking and decision-making, creativity and innovation, research and information literacy, and self-direction), and share strategies for heightening expectations, personalizing learning experiences, leveraging technology, and making good use of assessment data in pursuit of better preparing students for college and career readiness.
Student-centric learning requires changes in the way instructional time is used. There are new opportunities for utilizing in-school and out-of-school time, and leveraging approaches such as competency-based learning to make learning more personalized and learning opportunities more accessible. These new opportunities leverage technology to meet the needs, pace, interests, and preferences of the learner. This transition is made possible through innovative uses of technology for assessing student learning, managing learning, engaging students in learning, disseminating content, and providing the infrastructure necessary to encourage flexible, anytime, anywhere learning opportunities.

**Elements of this Gear:**

- Flexible Learning: Anytime, Anywhere
- New Pedagogy, Schedules, and Learning Environments for Personalized Learning
- Competency-Based Learning
- Strategies for Providing Extended Time for Projects and Collaboration

**Your District provided the following Use of Space and Time vision:**

Devices used to connect us to resources exist in our schools, in our homes, in our pockets or backpacks - we are no longer limited to the confines of the four walls of a classroom or a “one-size-fits-all” methodology. We must provide the learner with the ability to assimilate learning anywhere and at any time using mobile technologies. Because of these tools, new learning environments can be: “24/7/365”, “just-in-time”, “personalized”, “blended/online”, “flipped”, “learner-driven”, “on-demand”.

Community partnerships include the formal and informal local and global community connections, collaborative projects, and relationships that advance the school’s learning goals. Digital communications, online communities, social media, and digital learning environments often serve as connectors for these partnerships.

Elements of this Gear:

- Local Community Engagement and Outreach
- Global and Cultural Awareness
- Digital Learning Environments as Connectors to Local/Global Communities
- Parental Communication and Engagement
- District Brand

Your District provided the following Community Partnerships vision:

We deliver services fostering home-school communications, resource training and support, and information sharing on curriculum and operations topics. We create partnerships that bring relevance to curricula using community-based experts and resources, implement community-based exhibitions of student work, and coordinate afterschool programs. “Inspire, Engage, Innovate,” communicates a “brand” for the district’s instructional culture - it appears on all correspondence used by the district.
NJTRAx Digital Learning
Readiness and Implementation Scores

Each of our schools is now using the NJTRAx Digital Learning tool (stakeholder surveys) to document their readiness and implementation ratings for digital learning, and we use the Digital Learning framework to assist each school to be ready for digital learning.

Goals:
• Increase both Readiness and Implementation Scores
• Reduce the gap between Readiness and Implementation
NJTRAx Overall Digital Learning Readiness Growth Report

Overall Digital Readiness Comparison

- Voorhees Middle: 6.4 7.4
- Signal Hill Elementary: 6.6 7.3
- Osage Elementary: 6.6 7.2
- Kresson Elementary: 6.7 7.4
- E.T. Hamilton Elementary: 6.7 7.4

The Digital Learning Readiness Rating is scored on a continuum from Investigating, to Envisioning, Planning, and Staging for implementation. Each of the ratings is based on a scale of 0-10.

Overall Digital Implementation

- Voorhees Middle: 5.9 6.6
- Signal Hill Elementary: 6.2 6.6
- Osage Elementary: 6.2 6.5
- Kresson Elementary: 6.2 6.6
- E.T. Hamilton Elementary: 6.6 6.8

A school’s implementation rating represents the extent to which digital learning is implemented with students. The Digital Learning Implementation Rating is scored on a scale of 1-10 on a continuum from no/low implementation, to moderate, and then high implementation. Only 5 of the 8 gears are used to calculate the implementation score, since the other three gears do not directly impact students.
The Digital Learning Readiness Rating is scored on a continuum from investigating, to envisioning, planning, and staging for implementation. Each of the ratings is based on a scale of 0-10.

A school's implementation rating represents the extent to which digital learning is implemented with students. The Digital Learning Implementation Rating is scored on a scale of 1-10 on a continuum from no/low implementation, to moderate, and then high implementation. Only 5 of the 8 gears are used to calculate the implementation score, since the other three gears do not directly impact students.
Technology Plan for Digital Learning 2016 – 2019

District & School-based Action Plan Targets:

1. Curriculum, Instruction, and Assessment
   1.1. 21st Century / Deeper Learning
   1.2. Personalized Learning
   1.3. Collaborative, Relevant, and Applied Learning
   1.4. Leveraging Technology
   1.5. Assessment – Analytics Inform Instruction

2. Use of Time
   2.1. Flexible Learning, Anytime, Anywhere
   2.2. New Pedagogy, Schedules, and Learning Environment for Per
   2.3. Competency-Based Learning
   2.4. Strategies for Providing Extended Time for Projects and Collaboration

3. Technology, Networks, and Hardware
   3.1. Equity and Adequacy of Devices
   3.2. Robust Network Infrastructure
   3.3. Adequate and Responsive Support
   3.4. Formal Cycle for Review and Replacement

4. Data and Privacy
   4.1. Data and Data Systems
   4.2. Data Policies, Procedures, and Practices
   4.3. Data-Informed Decision Making
   4.4. Data Literate Education Professionals

5. Community Partnerships
   5.1. Global and Cultural Awareness
   5.2. Digital Learning Environments as Connectors to Local and Global Communities
   5.3. Parental/Guardian Communication and Engagement
   5.4. District and School Brand

6. Professional Learning
   6.1. Shared Ownership and Responsibility for Professional Growth
   6.2. Divers Opportunities for Professional Learning
   6.3. Broad-Based, Participative Evaluation

7. Budget and Resources
   7.1. Efficiency and Cost Savings
   7.2. Consistent Funding Streams
   7.3. Learning Return on Investment

8. Empowered, Innovative Leadership
   8.1. A Shared, Forward-Thinking Vision for Digital Learning
   8.2. A Culture of Collaboration, Innovation, Capacity Building, and Empowerment
   8.3. High Expectations for Evidence-Based Transformations to Digital Learning
   8.4. Transformative, Coherent Thinking, Planning, Policies, and Implementation
The Framework presents a holistic view of 21st century teaching and learning that combines a discrete focus on 21st century student outcomes (a blending of specific skills, content knowledge, expertise and literacies) with innovative support systems to help students master the multi-dimensional abilities required of them in the 21st century.

The key elements of 21st century learning are represented in the graphic and descriptions below. The graphic represents both 21st century skills **student outcomes** (as represented by the arches of the rainbow) and 21st century skills **support systems** (as represented by the pools at the bottom).
2014 New Jersey Core Curriculum Content Standard 8.1 “Educational Technology”

Content Statements & Indicators – By the End of Grade 8

- Develop cultural understanding and global awareness by engaging with learners of other cultures.
- Communicate information and ideas to multiple audiences using a variety of media and formats.
- Identify and define authentic problems and significant questions for investigation.
- Plan and manage activities to develop a solution or complete a project.
- Collect and analyze data to identify solutions and/or make informed decisions.
- Use multiple processes and diverse perspectives to explore alternative solutions.
- Explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision.
- Synthesize and publish information about a local or global issue or event (e.g., telecollaborative projects, blog, school website).
- Advocate and practice safe, legal, and responsible use of information and technology.
- Create original works as a means of personal or group expression.
- Create a database query, sort, and create a report and describe the process, and explain the report results.
- Use and/or develop a simulation that provides an environment to solve a real-world problem or theory.
- Demonstrate knowledge of a real-world problem using digital tools.
- Graph and calculate data within a spreadsheet and present a summary of the results.
- Use critical thinking skills to evaluate the impact of technology in society.
- Demonstrate an understanding of fair use and Creative Commons intellectual property.
- Demonstrate the application of appropriate citations to digital content.
- Select and use applications effectively and productively.
- Understand and use technology systems.
- Demonstrate the ability to use technology to communicate and collaborate with others.
Framework for 21st Century

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**TECHNOLOGY AND INFORMATION LITERACY STUDENT ASSESSMENT**

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**PERCENT PROFICIENT by 5th Grade**

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**Technology Operations and Concepts**

- Identify the basic features of a digital device and its purpose.
- Create a document using a word processing application.
- Compare the common uses of at least two different digital applications and discuss the advantages and limitations of using each.
- Demonstrate developmentally appropriate sophistication in verbal instrument(s) (e.g., game mechanics).
- Enter information into a spreadsheet and use it to make informed decisions.
- Identify the structure and components of a database.
- Enter information into a spreadsheet and solve problems.
- Select and use the appropriate digital tools and resources to accomplish a task and identify underlying problems.
- Formulate and apply information to solve problems.
Let’s take a look at **Bloom’s Taxonomy** for a moment....
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<tr>
<td>Recall/rephrase facts without understanding. Exhibits previously learned material by recalling facts, terms, basic concepts and answers.</td>
<td>To show understanding finding information from the text. Demonstrating basic understanding of facts and ideas.</td>
<td>To use in a new situation. Solving problems by applying acquired knowledge, facts, techniques and rules in a different way.</td>
<td>To examine in detail. Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalisations.</td>
<td>To change or create into something new. Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.</td>
<td>To justify. Presenting and defending opinions by making judgements about information, validity of ideas or quality of work based on a set of criteria.</td>
</tr>
</tbody>
</table>

**Key words:**
- Choose
- Observe
- Show
- Ask
- Extend
- Outline
- Administer
- Employ
- Practice
- Assess
- Examine
- Prioritize
- Adapt
- Plan
- Agree
- Disprove
- Measure
- Copy
- Omit
- Spell
- Define
- Generalise
- Predict
- Appraise
- Find
- Question
- Choose
- Happen
- Reframe
- Agree
- Effective
- Persuade
- Doublet
- Read
- Spell
- Prototype
- Compare
- Place
- Select
- Build
- Identify
- Show
- Choose
- Hypothesise
- Revise
- Duplicate
- Read
- Spell
- Define
- Compare
- Place
- Select
- Build
- Identify
- Show
- Choose
- Hypothesise
- Revise
- Find
- Recall
- Trace
- How
- Recite
- What
- Identify
- Recognise
- When
- Label
- Record
- Where
- List
- Relate
- Which
- Listen
- Remember
- Who
- Locate
- Repeat
- Why
- Match
- Reproduce
- Write
- Memorise
- Retell

**Actions:**
- Describing
- Finding
- Identifying
- Labeling
- Locating
- Naming
- Reproduction
- Recognising
- Retrieving
- Workbook
- Worksheet
- Classification
- Collection
- Examples
- Explaining
- Label
- Inferring
- Interpreting
- Outline
- Quiz
- Summarising
- Show and tell
- Summary
- Demonstrating
- Executing
- Implementing
- Using
- Abstracting
- Deconstructing
- Integrating
- Outlining
- Structuring
- Constructing
- Designing
- Devising
- Making
- Planning
- Producing
- Advertising
- Checking
- Charting
- Charting
- Database
- Graph
- Mobile
- Report
- Spread sheet
- Survey

**Outcomes:**
- Defining
- Comparing
- Exemplifying
- Inferring
- Listing
- Paraphrasing
- Summarising
- Diary
- Illustrations
- Organisation
- Journalism
- Performance
- Presentation
- Structure
- Simulation
- Elaborate
- Point out
- Comparing
- Composing
- Massaging
- Maximising
- Minimalise
- Test
- Theorise
- Think
- Transform
- Original
- Visualise

**Questions:**
- Can you list three...?
- Can you recall...?
- Can you select...?
- How did it happen?
- How did you classify...?
- How would you explain...?
- How would you show...?
- What is...?
- When did...?
- Can you explain what is happening...what is meant...?
- How would you classify the type of...?
- How would you solve...using what you have learned...?
- How would you organise...to show...?
- What are the parts or features of...?
- What changes would you make to solve...?
- What would improve...?
- What would happen if...?
- What is the feature...?
- What is the theme...?
- What motive is there...?
- Can you list the parts...?
- What inference can you make...?
- What conclusions can you draw...?
- How would you classify...?
- How would you change...?
- What is your opinion of...?
- How would you prove/disprove...?
- Can you assess the value/importance of...?
- Would it be better if...?
- Why did they (the character) choose...
- What would you recommend...?
### Knowledge
Recall or regurgitate facts without understanding. Exhibits previously learned material by recalling facts, terms, basic concepts and answers.

#### Key words:
- Choose
- Observe
- Show
- Copy
- Draw
- State
- Define
- Read
- Tell
- Find
- Recall
- Trace
- How
- Recte
- What
- Identify
- Recognise
- Label
- List
- Relate
- Listen
- Remember
- Locate
- Repeat
- Match
- Memorise
- Name

### Comprehension
To show understanding finding information from the text. Demonstrating basic understanding of facts and ideas.

#### Key words:
- Ask
- Extend
- Outline
- Cite
- Generalise
- Predict
- Classify
- Give examples
- Compare
- Plans
- Relate
- Contrast
- Illustrate
- Rephrase
- Demonstrate
- Illustrate
- Report
- Strate
- Indicate
- Restate
- Discuss
- Infer
- Review
- Estimate
- Interpret
- Show
- Listen
- Remember
- Express
- Match
- Summarise
- Express
- Observe
- Translate

### Application
To use in a new situation. Solving problems by applying acquired knowledge, facts, techniques and rules in a different way.

#### Key words:
- Act
- Employ
- Practice
- Administer
- Experiment
- Relate
- Apply
- with
- Represent
- Associate
- Group
- Select
- Build
- Identify
- Show
- Calculate
- Illustrate
- Simulate
- Categorise
- Interpret
- Solve
- Choose
- Interview
- Summarise
- Classify
- Link
- Teach
- Connect
- Make use of
- Transfer
- Construct
- Manipulate
- Translate
- Correlation
- Model
- Use
- Demonstrate
- Organise
- Develop
- Perform
- Dramatise
- Plan

### Actions:
- Describing
- Finding
- Identifying
- Listing
- Locating
- Naming
- Recognising
- Retrieving

### Questions:
- Can you list three...?
- Can you recall...?
- Can you select...?
- How did _____ happen?
- How is...?
- How would you describe...?
- How would you explain...?
- What is...?
- What did...?
- When did...?
- Where is...?
- Which one...?
- Who was...?
- Who was the main...?
- Why did...

### Outcomes:
- Definition
- Fact
- Label
- Quiz
- Test
- Workbook
- Worksheet

### Actions:
- Classifying
- Comparing
- Exemplifying
- Explaining
- Interpreting
- Paraphrasing
- Summarising

### Questions:
- Can you explain what is happening...?
- What is it...?
- What how do you classify the type of...?
- How would you compare...?
- How would you rephrase the meaning...?
- How would you summarise...?
- What can you say about...
- What facts or ideas show...?
- What is the main idea of...?
- Which is the best answer...?
- Which statements support...?
- Will you state or interpret in your own words...?

### Outcomes:
- Collection
- Examples
- Explanation
- List
- Outline
- Quiz
- Show and tell
- Summary

### Questions:
- How would you use...?
- What examples can you find to...?
- How would you solve _______ using what you have learned...?
- How would you organise _______ to show...?
- How would you show your understanding of...?
- What approach would you use to...?
- How would you apply what you learned to develop...?
- What other way would you plan to...?
- What would result if...?
- Can you make use of the facts to...?
- What elements would you choose to change...?
- What facts would you select to show...?
- What questions would you ask in an interview with...?

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**Bloom's Taxonomy: Teacher Planning Kit**
### Analysis

To examine in detail. Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalisations.

**Key words:**
- Analyse
- Examine
- Prioritise
- Appraise
- Find
- Question
- Arrange
- Focus
- Rank
- Assumption
- Function
- Reason
- Breakdown
- Group
- Relation-
- Categorise
- Highlight
- ships
- Cause and
- In-depth
- Recognise
- effect
- discussion
- Research
- Choose
- Inference
- See
- Classify
- Inspect
- Select
- Differences
- Investigate
- Separate
- Discover
- Isolate
- Similar
- to
- Discriminate
- List
- Simplify
- Dissent
- Motive
- Survey
- Distinction
- Omit
- Take part in
- Device
- Distinguish
- Order
- Test for
- Divide
- Organise
- Theme
- Establish
- Point out
- Comparing

### Synthesis

To change or create into something new. Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.

**Key words:**
- Adapt
- Estimate
- Plan
- Add to
- Experience
- Predict
- Build
- Extend
- Produce
- Change
- Formulate
- Propose
- Choose
- Happen
- Reframe
- Combine
- Hypothesise
- Revise
- Compile
- Imagine
- Rewrite
- Compose
- Improve
- Simplify
- Construct
- Innovate
- Solve
- Convert
- Integrate
- Select
- Create
- Invent
- Substitute
- Delete
- Make up
- Suppose
- Design
- Maximise
- Tabulate
- Develop
- Minimise
- Test
- Device
- Model
- Theorise
- Decide
- Modify
- Think
- Discuss
- Original
- Transform
- Establish
- Elaborate
- Originate
- Attribute
- Abstract
- Conceiving
- Designing
- Devising
- Devising
- Making
- Planning
- Producing
- Producing
- Reporting
- Song
- Story
- Advertising
- Film
- Media
- Product
- New
- Game
- Painting
- Plan
- Project
- Report
- Structure
- Mobile
- Report
- Graph
- Database
- Integrating
- Organising
- Planning
- Project
- Report
- Spread sheet
- Survey

### Evaluation

To justify. Presenting and defend your opinions by making judgements about information, validity of ideas or quality of work based on a set of criteria.

**Key words:**
- Agree
- Disapprove
- Measure
- Appraise
- Dispute
- Opinion
- Argue
- Effective
- Perceive
- Assess
- Estimate
- Persuade
- Award
- Evaluate
- Prioritise
- Bad
- Explain
- Prove
- Choose
- Give reasons
- Rate
- Compare
- Good
- Recommend
- Grade
- Conclude
- Solve
- Consider
- How do we
- Select
- Convince
- know?
- Support
- Importance
- Test
- Criteria
- Infer
- Useful
- Debate
- Influence
- Validate
- Interpret
- Value
- Decide
- Deduct
- Judge
- Defend
- Justify
- Determine
- Mark

### Questions:

**What are the parts or features of...?**

**How is... related to...?**

**Why do you think...?**

**What is the theme...?**

**What motive is there...?**

**Can you list the parts...?**

**What inference can you make...?**

**What conclusions can you draw...?**

**How would you classify...?**

**How would you categorise...?**

**Can you identify the difference parts...?**

**What evidence can you find...?**

**What is the relationship between...?**

**Can you make a distinction between...?**

**What is the function of...?**

**What ideas justify...?**

**What changes would you make to solve...?**

**How would you improve...?**

**How would it happen if...?**

**Can you elaborate on the reason...?**

**Can you propose an alternative...?**

**Can you invent...?**

**How would you adapt... create a different...?**

**How could you change... the plot (plant)...?**

**What could be done to minimise... maximise...?**

**What way would you design...?**

**Suppose you could... what would you do...?**

**How would you test...?**

**Can you formulate a theory...?**

**Can you predict the outcome...?**

**How would you estimate the results for...?**

**What facts can you compile...?**

**Can you construct a model that would change...?**

**Can you think of an original way for the...?**

**Do you agree with the actions/outcomes...?**

**What is your opinion of...?**

**How would you prove/disprove...?**

**Can you assess the value/importance of...?**

**Would it be better if...?**

**Why did they (the character) choose...?**

**What would you recommend...?**

**How would you rate the...?**

**What would you cite to defend the actions...?**

**How would you evaluate...?**

**How could you determine...?**

**What choice would you have made...?**

**What would you select...?**

**How would you prioritise...?**

**What judgement would you make about...?**

**Based on what you know, how would you explain...?**

**What information would you use to support the view...?**

**How would you justify...?**

**What data was used to make the conclusion...?**
TPACK Model: Intersection at center of Venn Diagram is sweet spot for educators:

- **Content Knowledge** – Important for highly qualified teachers and their competencies
- **Pedagogical Knowledge** – Important for highly qualified teachers and their competencies
- **Technical Knowledge** – Important for preparing students for globalized world economy powered by digital technology

Technical Knowledge has lagged behind and needs to be developed - the model provides no steps or guidance; no measurable standards; should be emphasized more than the other two components
Where do you stand?

Content
What are your strengths and challenges in terms of subject-area knowledge? (concepts, facts, theories, procedures in your discipline)

Pedagogy
What are your strengths and challenges in terms of teaching knowledge? (student construction of knowledge, assessment, differentiation, etc.)

PCK

TPCK

Technology
What are your strengths and challenges in terms of learning and adapting to digital technologies?

TCK

TPK
SAMR Model: Builds on TPACK model by providing in-depth hierarchy for categorizing technology tools and how their use can change the nature of tasks. It lacks incremental identifiers of instructional or learning practice as guidance (more concrete examples needed for each phase of the continuum) Substitution > Augmentation > Modification > Redefinition
SAMR Model

**Class Task**

- Note taking
- Research
- Presentation
- File sharing
- Reading
- Assessment

**Substitution**

- Notes taken using iOS Notes
- Using Safari to copy and paste information
- Make a keynote presentation on the iPad
- Sent by email every lesson
- Open PDF from email
- Google form test

**Augmentation**

- Students choose their own notes app
- Bookmark and share notes using the share button
- Demonstrate understanding with Explain Everything
- Shared Dropbox folder
- Use dictionary & search document
- Google form test with automatic marking script

**Modification**

- All students use Notability for all notes
- Download and annotate with Notability
- Combine audio, video and text in Movie Presentation
- Showbie
- Annotating documents in Notability & iBooks
- Creative projects withStrip Designer, Showme & iMovie

**Redefinition**

- Teachers have access to all student's notes.
- Collaborative Mindmaps
- Nearpod Presentation
- iTunes U
- Interactive iBook
- Creative Assignments with audio feedback in Showbie
What’s the Difference?

**Project-Based Learning**
- Individual or group
- Teacher defines the problem
- Teacher identifies action steps
- Create a product

**Problem-Based Learning**
- Groups
- Students define the problem
- Students identify action steps
- Create a solution
- Metacognition

**Both**
- Teacher as guide
- Students at centre
- Real-world connections
- Active learning
- Self and peer assessment

**Bottom Line:** In Problem-Based Learning, students have more control over their own learning and the processes involved.
T3 Framework – Disruptive Innovation Framework

T1: Transactional – Translating tasks or experiences from analog to digital modality. Over abundantly used, value is added, but little.

- **Automation** – Automated tasks; time saving; accuracy; efficiency (administrative/productivity)

- **Consumption** – Online or digital media to acquire information (text, images, audio, video)

Solve a Wick Problem
T3 Framework – Disruptive Innovation Framework

T2: Transformational - Intentional application of digital technologies to unleash students’ learning expertise in ways not possible without technology tools.

**Production** – Apply knowledge in the production of authentic digital artifacts that represent what the students know and how they came to know it.

**Contribution** – Use digital tools to “teach” others what they know (presenting via digital communication tools).
T3 Framework – Disruptive Innovation Framework

**T3: Transcendent** – Results in authentic, original and unprecedented growth in knowledge, contribution and value-generating performance

**Inquiry Design** – Students use technology to investigate a wicked real-life problem that matters to them; design original inquiry and generate resolutions; communicate, defend and iterate their unique contribution

**Social Entrepreneurship** – Combines generating social good and generating value (authentic passion and need); students imagine, design and create new tools or platforms to solve wicked problems that matter (prototype); beta test, iterate and generate robust versions of their digital solutions (coding, app design); scale the implementation of the robust digital solution
The Future of Everything

“If we continue along our current trajectory, students in future classrooms will sit in front of computers passively absorbing information transmitted by a teaching robot. Future classrooms will simply reproduce in a digital realm what’s currently being done in the analog world: mistaking the transmission of information for authentic knowledge generation.

Here’s another possibility: future classrooms will be expansive places where authentic experiential learning is distributed among a wide variety of physical and virtual spaces that are directed by students’ individual interests, passion, and purpose. Learning spaces of the future will include interactive entrepreneurial environments where students can explore new content knowledge through inquiry design, learning how to learn and how to apply their learning to solve complex, wicked problems that matter to them.

So which future classroom will emerge? That depends on whether we choose to disrupt the status quo by preparing students for their future rather than our past.”

- Sonny Magana
Wicked problems

- Difficult to define
- Socially complex
- Multiple stakeholders
- Issues are interconnected
- Data contradictory or incomplete
- Solutions are costly
- Solution can't be tested without implementing
- Solution may cause new problems
- There is no "end" to the timeline
Disrupt Your Classroom . . . Start with a Wicked Problem!

1) Find a problem in:
   - the class or school
   - the community
   - the state
   - the country
   - the world

What’s important to the students?

2) Establish all relevant curriculum links –

Where does this fit in?

3) Transform learning with innovation:
   - What needs to be done?
   - What's my approach?
   - What tools should we use?
   - What knowledge and skills are required?

What help do I need?

4) Transcendental student engagement
   - collaborative communities
   - dialogue
   - student impact questions
   - share/explain to others
   - make errors and deal

Work as a team!
When we spoon-feed information to students, we do the work for them. We rob them of the benefits of rigorous learning. We rob them of effort. We rob them of productive struggle. We rob them of opportunities to develop grit, perseverance, and resilience. - @Wes_Kieschnick
Getting Started by Developing Critical Thinking Skills!

De Bono’s 6 Thinking Hats
**Blue Hat - Process**
Thinking about thinking.
What thinking is needed?
Organizing the thinking.
Planning for action.

**Green Hat - Creativity**
Ideas, alternatives, possibilities. 
Solutions to black hat problems.

**White Hat - Facts**
Information and data.
Neutral and objective.
What do I know?
What do I need to find out?
How will I get the information I need?

**Yellow Hat - Benefits**
Positives, plus points.
Why an idea is useful.
Logical reasons are given.

**Red Hat - Feelings**
Intuition, hunches, gut instinct.
My feelings right now.
Feelings can change.
No reasons are given.

**Black Hat - Cautions**
Difficulties, weaknesses, dangers.
Spotting the risks.
Logical reasons are given.
**Blue Hat - Process:** You are the conductor of the conversation. Your job is to make sure all hats are represented and that the conversation keeps moving forward.

**Green Hat - Creativity:** You come up with creative solutions and think outside the box. Your job is to avoid the most obvious solutions and to express more creative ideas, even if they are completely irrational.

**White Hat - Objectivity:** You think about the topic objectively and do not mix emotions with your thinking. Your job is to focus only on information and facts. You are neutral in your emotions.

**Red Hat - Intuition:** You focus on your gut reaction and initial impressions. Your job is to say what comes to your mind and to avoid overanalyzing the topic.

**Black Hat - Negativity:** You focus on the negative aspects of the topic, such as why a suggestion doesn’t work or why it’s a bad idea. You focus on adopting a pessimistic attitude of the topic.

**Yellow Hat - Positivity:** You focus only on the positive aspects of the topic. Your job is not to criticize your own ideas, but to simply voice them and listen as others give their points of view.
Crafting a Vision for Empowered Learning and Teaching: Beyond the $1,000 Pencil

Defining the Opportunity

In defining the problem that technology brings to learning, there are two broad decision trees for leaders:

1. What are we currently doing within our curriculum that we could be doing better by using technology?
2. What have we never done before that technology uniquely enables to enhance teaching and learning?

Both decision trees can lead to improved learning. Since adding technology to existing work is fairly straightforward, we must focus on the definition of transformation. The questions that leaders should ask themselves include:

1. Are we adding unique value to what we are doing as a school or district when using technology?
2. How can we ensure these changes are scaled throughout the organization?
Crafting a Vision for Empowered Learning and Teaching: Beyond the $1,000 Pencil

Crafting A New Vision: ‘Transformational Six’

To support leaders to craft a new vision of teaching and learning, here is a framework of six key questions that education leaders can use to assess whether technology has brought transformative value to instruction. If you can answer “yes” to any of these six questions, then you’re on the right track:

1. Did the assignment build capacity for critical thinking on the web?
2. Did the assignment develop new lines of inquiry?
3. Are there opportunities for students to make their thinking visible?
4. Are there opportunities to broaden the perspective of the conversation with authentic audiences from around the world?
5. Is there an opportunity for students to create a contribution (purposeful work)?
6. Do students own their learning?

- Alan November
My Future Ready Classroom
Form – a planning guide
#2 - What is an authentic learning problem?

- Authentic Global Literacy
  1. Find a problem in:
     - The class or school
     - The community
     - The state
     - The country
     - The world
  2. Disrupt Your Classroom!
     - Start with a Wicked Problem!

- Art
  - Graffiti all over city, how can you cover

- Math
  - Stock Market, Holiday Dinner, Plan a Vacation, Dolphin Project, Financial Literacy – Spending and Saving

- Science
  - Pollution, Cut on Germs in Public Places, Conservation, Weather, Natural Disasters

- SS
  - Bullying, Cultural Differences, Immigration, Digital Literacy and Citizenship

- Language Arts
  - Relates to all above
#6 - 21st Century Interdisciplinary Themes

➢ Global Awareness

➢ Financial, Economic, Business and Entrepreneurial

➢ Civic Literacy

➢ Health Literacy

➢ Environmental Literacy
Learning and Innovation Skills

• From **2014 New Jersey Core Curriculum Content Standards - Technology**

  ➢ Creativity & Innovation (8.1.B)

  ➢ Critical Thinking & Problem Solving (8.1.F)

  ➢ Communication & Collaboration (8.1.C)
#8 – **Information Media & Technology skills**

- Informational Literacy
- Media Literacy
- ICT (Information, Communications & Technology) Literacy
# 9 - Life and Career Skills

- Flexibility and Adaptability
- Innovative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility
# 12 Will any Community Group play a role?

- **Microsoft Education Website**
  - Look on Left!
    - Courses & Resources
    - Skype in Classroom
      - Skype Lessons
      - Skype Collaborations
      - Virtual Field Trips
      - Guess Speakers
      - Mystery Skype
    - Find Create & Share a Lesson
    - Connect & Share with Educators
SAMR Model: Builds on TPACK model by providing in-depth hierarchy for categorizing technology tools and how their use can change the nature of tasks. It lacks incremental identifiers of instructional or learning practice as guidance (more concrete examples needed for each phase of the continuum) Substitution > Augmentation > Modification > Redefinition
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Redefinition
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- Interactive iBook
- Creative Assignments with audio feedback in Showbie
Content Area and Educational Technology Standards

• **Content Standards**

• [2014 New Jersey Core Curriculum Content Standards - Technology](#)
Resources

• Microsoft in Education – Education Transformation Framework