Project Based Learning

ANALYSER

opment Goals

- TALKER / BATUR

GRADUATES

2 4

FUTURE SCHOOL

SEBUAH KONSEP

"MEMBANGUN

REKAYASA ULANG SISTEM PE

PENDIDIKAN ABAD 21"

Perencanaan dan Aktifitas untuk menciptakan Student Centered Learning

A Riza Wahono Madrasah International **TechnoNatura**

2. PROCESS



HOW PROJECT BASED LEARNING DEVELOPED

- STUDENT CENTERED LEARNING
- STEAM COMPETENCIES
- STEAM CURRICULUM
- STEAM ASSESSMENT
- STEAM REPORTING
- TEACHER PREPARED SCAFFOLDIN



CREATING STUDENT CENTERED LEARNING

		SD/MI		MTs/SMP - N	/IA /SMA
	Traditional Hands-on	Novice	Informed Novice	Expert	Researcher
	(Verification of Facts)	(Factual Knowledge)	(Understand facts/ideas in context of conceptual framework)	(Adapts conceptual frameworks through transfer)	(Creation of new knowledge and/or conceptual frameworks)
Standards- based Assessment	State/ Teacher	State/ Teacher	State/ Teacher	State/ Teacher	State/ Teacher
Topic Chosen	Teacher	Teacher	Teacher	Teacher	Student/Researcher/Community
Task Definition	Teacher	Teacher	Teacher	Student	Student/ Community
Resources Planning	Teacher	Teacher	Teacher	Student/ Community	Student/ Community
Procedures/ Design Development	Teacher	Teacher	Teacher/ Student	Student/ Community	Student/ Community
Artifacts/ Analysis	Teacher	Teacher/ Student	Student/ Community	Student/ Community	Student/ Community
Outcomes	Teacher/ Student	Student	Student/ Community	Student/ Community	Student/ Community

STUDENT CENTERED LEARNING











Project Id name Type Level duration starting and ending date **Project Description** Project Main Phase Detail steps **Deliverables** Student role Schedule **Project Scaffolding**

Artifact/ working prototype / Art masterpiece / product / service / Patents / company secret / Procedure / logo/ brands

Engineering Notebook/ Scientific Paper/ Article/ Business plan / proposal plan / social Review / Report / Journal /science lab book / books / Patents

Brochure/ banner / flyer / video product / website / marketing kits

Outreach / public speech / learning material presentation

Tv Publication, Radio Publication, Web Publication, Instagram Publ journal publ, magazine, newspaper, Vlog/ Youtube etc







Projectweek 1week 2week 3week 4week 6week 7Id nameStep 1Define the Problem 2II <td< th=""><th></th><th></th><th>111111</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>			111111								
Id1234567IdStepDefine the ProblemIIIIIIITypeStepGenerateSpecificationsIIIIIIIIILevelStepGenerateSpecificationsIIIIIIIIIIdurationStepSpecification RankingIII </td <td>Project</td> <td></td> <td></td> <td>week</td> <td>week</td> <td>week</td> <td>week</td> <td>week</td> <td>week</td> <td>week</td> <td>wee</td>	Project			week	week	week	week	week	week	week	wee
NumberStep 1Define the ProblemIII <th< td=""><td>bl</td><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></th<>	bl			1	2	3	4	5	6	7	8
Type Level durationStep 2Generate SpecificationsIIIIIIIdurationStep 3Specification Ranking & AlternativesIIIIIIIIIIIIIIIIIIIProject Description4Step & AlternativesGenerate Concepts & AlternativesIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	name	Step 1	Define the Problem	11							
Level 2 Specifications III IIII IIIII IIIII IIIII IIIII IIIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Туре	Step	Generate	111							
durationStep 3Specification RankingIIIIIIIstarting and ending dateStepGenerate Concepts 4AlternativesIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Level	2	Specifications								
starting and ending date/ Project Description Project Main Phase Detail steps Deliverables Student role Schedule Project Scaffolding Step Manufacturing & 10 Testing & Analysis Neview, and Approval	duration	Step 3	Specification Ranking								
Project Description4& AlternativesProject Main PhaseStepPrototypingImage: Consect of the sector of the se	starting and ending date /	Step	Generate Concepts		111111						
Project Main Phase Step Prototyping IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Project Description	4	& Alternatives								
Detail steps Step Choose a Concept Image: Choose a Concept<	Project Main Phase	Step 5	Prototyping								
Student role Step Detailed Design Implementation Implementation </td <td>Detail steps Deliverables</td> <td>Step 6</td> <td>Choose a Concept</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Detail steps Deliverables	Step 6	Choose a Concept								
Step 8Design Presentation, Review, and ApprovalImage: Constraint of the second	Student role	Step 7	Detailed Design								
Step Manufacturing & Implementation Implementation Implementation Step Testing & Analysis Implementation Implementation	Project Scaffolding	Step 8	Design Presentation, Review, and Approval								
Step 10Testing & AnalysisImage: Comparison of the second secon		Step 9	Manufacturing & Implementation								
		Step 10	Testing & Analysis								

Project

Id

name

Туре

Level

duration

starting and ending date Project Description Project Main Phase Detail steps

Deliverables

Student role

Schedule

Project Scaffolding

Shared understanding of the goal of the activity

Tools of work

Working Reference

Ongoing diagnostic

Interactive nature scaffolded instruction

Fading The support

Project Charter

project management

Paper and pencils tool

Software tools

Technological resource

New Curricula

Syllabus

Learning Materials

Online Manual guide

Working Prototype

Working model

Standards Patents

Calibrated Support

Graduated assistance

Teacher led discussion Group Work Peer interaction Invited expert lecture Focus Group discussion Questioning and Answer

tutorial individual projects Peer interaction competition project

educational environment

SAMPLE PROJECT BASED LEARNING IN TECHNONATURA

- LEVEL SD : Project Vending Machine
- LEVEL SMP : Robot FIRST Technical Challenge



12 class comments

Level 5 TTR 1 Vending Machine Pekan ke 3 (10-14 Agustus 2020)

 \equiv

ENGINEERING Project Kelas/ Level 5 VENDING MACHINE



Selasa	
Qur'anic reading 🗏 5	Posted Aug 9
Islamic knowledge : Al Musawwir 🗐 21	Posted Aug 9
Engineering planning 🗐 21	Posted Aug 9
 2. DESIGN IDEAS A. Design Gambarkan desain projek yang akan dibuat beserta penjelasan bagian - bagiannya B. Tools and Materials Tuliskan semua alat dan bahan yang akan digunakan untuk membuat projek secara rinci. C. How to Make Tuliskan cara membuat projek secara runut dan rinci. Setelah selesai, hasilnya dikirim via google classroom. 	rned in Assigned

Level 5 TTR 1 Vending Machine Pekan ke 3 (10-14 Agustus 2020)

 \equiv

ENGINEERING Project Kelas/ Level 5 VENDING MACHINE



Rubu				
Memorizing	Qur'an 🗏 12			Posted Aug
Math : graph	ing patterns 🗐 13			Posted Aug
Action day :	making and testing	(vendin 🗐 9		Posted Aug
 MAKING AND TEST A. Result Tampilkan hasil projek of B. Working System Jelaskan sistem kerja d C. Testing Result Jelaskan hasil pengujia Pengujian dilakukan ses Setelah selesai, hasilnya 	r dalam bentuk foto dan lari projek yang telas d n dari projek yang tela suai dengan fungsi das a dikirim via google cla ngineering Report	video. ibuat. h dibuat. sar. issroom.		
	ord			

How to Make Candy Vending Machin ... me - DIY Candy Dispenser (2).mp4







Level 5 TTR 1 Vending Machine Classwork **E** Stream People Grades Pekan ke 3 (10-14 Agustus 2020) Jum'at **ENGINEERING Project** Kelas/ Level 5 Ê Islamic quiz 🗐 7 Edited Aug 9 VENDING MACHINE Ê Math quiz 🗐 3 Posted Aug 9 Ê Engineering presentation 9 Posted Aug 9 No due date Masing - masing siswa akan melakukan presentasi secara online dengan mentor. 25 10 Waktu presentasi akan dibagi menjadi 2 sesi sesuai dengan jadwal video online. Turned in Assigned Pagi: 09.30-10.30 WIB Siang: 13.00 - 14.00 WIB Poin penilaian presentasi : * Presenter : penilaian dilihat dari sikap selama presentasi dan laporan sainsnya (tampilan laporan menarik & jelas serta isi laporan). * Audiens : sebagai audiens akan dinilai keaktifan bertanya maupun memberikan saran yang membangun.

ENGINEERING Project Kelas/ Level 5 VENDING MACHINE



J	u	m	a	t
1.0				



Stream



Engineering presentation 🗐 9

No due date

E

Masing - masing siswa akan melakukan presentasi secara on

Classwork

People

Waktu presentasi akan dibagi menjadi 2 sesi sesuai dengan ja Pagi : 09.30-10.30 WIB Siang : 13.00 - 14.00 WIB

Poin penilaian presentasi :

- * Presenter : penilaian dilihat dari sikap selama presentasi dar (tampilan laporan menarik & jelas serta isi laporan).
- * Audiens : sebagai audiens akan dinilai keaktifan bertanya ma saran yang membangun.



ENGINEERING Project Kelas/ Level 5 VENDING MACHINE



J	ur	n'	a	t
100				



Stream



Engineering presentation 🗐 9

No due date

E

Masing - masing siswa akan melakukan presentasi secara on

Classwork

People

Waktu presentasi akan dibagi menjadi 2 sesi sesuai dengan ja Pagi : 09.30-10.30 WIB Siang : 13.00 - 14.00 WIB

Poin penilaian presentasi :

- * Presenter : penilaian dilihat dari sikap selama presentasi dar (tampilan laporan menarik & jelas serta isi laporan).
- * Audiens : sebagai audiens akan dinilai keaktifan bertanya ma saran yang membangun.



PROBLEM DEFINITION

a. Brief

I want to make a vending machine for arcade card games

B. Market Need/Assessments Arcade game players and fans



Engineering presentation by Kei (Zaid) C. Function Lists

1. Basic functions

To make it easier for game players to buy and collect game cards

2. Performance function, with the following components:

- a. Cardboard component for inserting coins
- b. Coins as ballast
- c. Cardboard seesaw to adjust weight
- d. Box for storing cards
- e. A box for storing coins
- f. Cardboard for pushing cards
- g. Rubber as a spring

D. Technology assessment

The technology used is cardboard with rubber as a spring.

E. DESIGN REQUIREMENT AND OBJECTIVES Vending machine for arcade game cards that can hold 20 playing cards.

DESIGN IDEAS

a. DESIGN

Design of a vending machine for arcade game cards, with an explanation of the parts as follows:



Information:

- 1) Cardboard components as a base plate
- 2) Cardboard components as a wall vending machine
- 3) The hole for inserting coins
- 4) Holes for selecting and removing small coins
- 5) Cardboard component for unloading and inserting coins
- 6) Cartons in the shape of a seesaw to adjust the weights
- Cardboard for teeter-totter support (cardboard rather thick)
- 8) Box for storing cards
- 9) A box for storing coins
- 10) Cardboard for pushing cards
- 11) Rubber as a spring

b. TOOLS & MATERIALS

The tools and materials used are: cardboard of various sizes, toothpicks, cutters, rulers, pencils, scissors, rubber, glue, coin and card.

C. How TO MAKE

Steps to make a vending machine for arcade game cards:

- 1) The first thing to prepare is a piece of cardboard for the base plate, and 2 walls each
- 2) Measuring and making holes in the walls
- 3) Attaching the two base plates to the cardboard wall

4) Cut the cardboard to make a place to put coins5) Affixing the coin holder to the wall

- 6) Make a card pusher
- 7) Making seesaw to adjust the weights, base
- of the box, seesaw, and wedge
- 8) Create card holders
- 9) Create a slide to place the card down
- 10) Create a coin holder
- 11) Then cover all the blanks with the wall.

MAKING & TEST



a. RESULT





B. Working System The coin is inserted into the hole, then the coin goes down through the slide of the coin holder, if the coin is too small it will go into the hole for the small coin. If the size of the coin is appropriate it will fall into the seesaw.

The seesaw is raised so that the card pushers can pass through the wedge cardboard, and the pushboard can push the card. The card is pushed forward and falls on the card slide, then the card comes out and can be drawn.

C. TESTING RESULT With this automatic arcade game card machine, card buyers, or gamers can get cards more easily, without having to make transactions or come face to face with the seller.

PRODUCT EVALUATION

• EVALUATION The base plate and wall are not

strong enough because the cardboard is not strong enough, and the slide of coins and cards must be very tilted so that they can go down easily.

FINAL DESIGN

a. CONCLUDING REMARK It turns out that vending machines can be made from simple ingredients. In this project using materials from used cardboard.

However, in making a vending machine from cardboard, you must use a strong material or thick cardboard. Size must also be considered because if the size is not suitable, the vending machine will not run properly.

B. SUGGESTION FOR FUTURE WORKS For the next manufacture of cardboard vendig machines, you must pay close attention to size, measure precisely as much as possible, and use strong and thick cardboard materials, in order to produce a good product.







2020-2021 Season

Senin, 10 Agustus 2020







2020-2021 Season

Selasa, 11 Agustus 2020

a ourse	ic Pooding	Edited Ave 11
gurar	lic keading	Edited Aug 11
Game	manual FTC 2019	Edited Aug 10
Religio	on	Posted Aug 5
Part R	obotic	Edited Aug 10
o due date		
o due date aca dan pelaja enjelasan terka	rilah penjelasan terkait Kit robotic FGC melalui link be <mark>r</mark> ikut ini. ait part robotik akan disampaikan oleh kak Surya melalui zoom level 7	0 37 Turned in Assigned
o due date aca dan pelaja enjelasan terka	rilah penjelasan terkait Kit robotic FGC melalui link berikut ini. ait part robotik akan disampaikan oleh kak Surya melalui zoom level 7 Link https://fgcteamgreece.weebl	O 37 Turned in Assigned

....





2020-2021 Season

Rabu, 12 Agustus 2020



:





2020-2021 Season

Kamis, 13 Agustus 2020

	Absensi Siswa	Posted Aug 4
	Quranic Reading	Edited Aug 12
	Math: Properties of Addition & Subtraction	Edited Aug 12
	Pemilihan desain	Edited Aug 13
	Pembuatan PPT	Edited Aug 13
Setiap F Konten 1. Tearr 2. FTC 2 3. Taha 4. Mena contoh	kelompok berbagi tugas pembuatan ppt/slide presentasi. ppt/slide presentasi yang dibuat, diantaranya menjelaskan : n robot masing2 kelompok 2019 upan engineering process design pada robot yang akan dibuat ampilkan dan menjelaskan analisa teknis gambar sketsa robot ppt/slide presentasi bisa dilihat pada file yang terlampir di sini	
P	DF SkybotsFinall.pdf	StackerBots PPT 1 (2).ppt PowerPoint





2020-2021 Season

Jum'at, 14 Agustus 2020

Absensi Siswa		Edited Aug 8
Quranic Reading	E	dited Aug 14
Math: Adding & Subtracting Fractions	E	dited Aug 14
Presentasi	E	dited Aug 11
No due date		
Presentasi dilakukan secara berkelompok melalui link zoom level 7	6	31
	Turned in	Assigned





2020-2021 Season

Closing

Project Based Learning is alternative approach learning in which during this pandemic gain exposure in creating student learning centred. However there is a paramount need of Instructional learning that must be properly scaffolded to promote learning through dialogue, feedback and shared responsibility.

Through the supportive and challenging learning experiences gained from carefully planned scaffolded learning, Teachers/mentors/ instructors can help students become lifelong, independent learners.