

School: _____

Team Number: _____

Team Members: _____

2026 Kansas FFA Agriculture Technical and Mechanical Systems Team Activity – 200 points

Instructions: Read the information below and complete all of the different activities in order to earn points for your team. These points will only be on the team portion of the event. They will NOT be used to determine individual placings.

Be sure to follow the steps below to complete the activity. As you cut material and construct this project, be sure to **operate all power equipment safely and wear proper PPE.**

****Teams may be disqualified if they do not operate equipment properly and safely!!!**

Scoring: Teams will be scored using the points and rubric on the back.

Scenario: XYZ Company has contacted your FFA chapter and requested that chapter members construct forms for concrete parking curbs. They would also like to have your chapter mix and pour the concrete at a later time. Your task today is to construct the form according to the plans provided and estimate the cost of materials for your chapter. Your team also needs to provide a short report that includes the cost for making additional forms and curbs.

Curb Form Construction:

1. Use the print to cut materials and assemble the form. Follow all instructions on the print.
2. Helpful hints – Pre-drill all screw holes on end grains to help prevent splitting. Do not overtighten screws – also to help prevent splitting. Do not use too many screws. Use enough to secure boards correctly so that the form will hold concrete.
3. Use the cut list to help cut pieces to the proper length. Teams are only allowed to use their allocated materials. There is not enough material for any team to use extra boards.

Cut list:

Pieces needed	Item name	Description	Cut length
2	Side form pieces	1" x 6" pine	6 feet
1	Bottom form	1" x 8" pine	6 feet
2	End cap pieces	1" x 8" pine	7 ¼ inches
2	Forklift insert	2" x 6" pine	5 ¾ inches
2	Chamfer corners	45 deg 1 ½" x 1 ½"	6 feet (already cut)
2	Reinforcing pin hole	¾" PVC pipe	6 inches

ASK YOUR EVENT SUPERVISOR IF YOU NEED ASSISTANCE USING A POWER SAW OR OTHER EQUIPMENT. They are also scoring teams for safety, use of time, teamwork, and etc.

Team Report

XYZ Company would like to have your chapter estimate the cost of building 45 curbs for them. They want to support your chapter and have offered to pay the chapter to build the curb, but want you to decide between 2 options. Calculate the cost to build the curbs and then decide which payment method you would recommend to your chapter advisor. Complete the steps below to complete this part of the activity.

You are advised to work on this part during the entire time and not put it off until the end as you will run out of time.

Cost Calculations

Use table below to help determine the cost for constructing these curbs. The first column indicates how much of each item is needed for ONE curb. (Round cost for 45 to nearest \$.01) (25 points)

Needed	Item name	Description	Cut length	Cost Each	Cost for 45
160 lbs	Quickrete	Mixed bag	N/A		
2	Side form pieces	1" x 6" pine	6 feet		
1	Bottom form	1" x 8" pine	6 feet		
2	End cap pieces	1" x 8" pine	7 ¼ inches		
2	Forklift insert	2" x 6" pine	5 ¾ inches		
2	Chamfer corners	45 deg board	6 feet		
2	Reinforcing pin hole	1/2" PVC pipe	6 inches		
44	Screws/fasteners	1 5/8" screw	N/A		

Total Cost: _____

Prices:	80 lb bag of Quickrete	\$5.98/bag
	1" x 6" pine -	\$11.23 for 12' board
	1" x 8" pine -	\$9.98 for a 8' board
	2" x 6" pine	\$6.67 for a 10' board
	2" x 4"	\$5.74 for a 12' board (makes 8 chamfer corners)
	½" PVC pipe	\$5.53 for a 10' piece
	1 5/8" screws	\$6.96 for 1 lb box (190 screws per lb)

Decision Making

1. XYZ will either pay your chapter \$20 above your cost for each curb OR \$2,750 total. Which option would you recommend to your advisor? WHY?

2. You can order Redi-Mix concrete for \$200 per cubic yard delivered plus a \$50 delivery charge. Each 80 lb bag of Quickrete contains 0.45 cubic feet of material. What would each option cost for this project? (Assume 45 curbs and calculate total cost)

Conversions – 1 cubic yard = 27 cubic feet (show calculations in the space provided)

Quickrete Option - \$ _____

Redi-Mix Option - \$ _____

3. What would be the advantages for each option?

Quickrete option –

Redi-Mix option –

Which concrete option would your team recommend and why?

Final Steps:

Put your team name on the wood form that was constructed with a permanent marker. Turn in all pages to your team supervisor. Be sure that each page has the team/school name on it. Staple all pages together.

Remind your instructor that they may pick up the form that was constructed at the end of the event.

Points Scoring:

Your team will be awarded points for safety including proper procedures and wearing PPE, following a logical order to cut material and assemble the project, working together as a team, building a quality form that is accurate and well-constructed, checking all variables, and etc.

Criteria	Excellent	Good	Fair	Poor
Teamwork (25 points) Score - _____	Team members communicate well, work equally divided, members work together well	Some communication, work is divided, members work together	Little communication occurs, 1 or 2 members do most of the work	Very little communication, 1 member does most of the work, poor teamwork
Logical Order (20 points) Score - _____	Members follow steps to cut materials, construct curbs, no rework needed.	Members measure cut materials and assemble curb, ends, base, inserts, etc.	Some steps are out of order or missed, some rework needed, extra time needed for project	Steps are out of order, project needs to be started over, not completed
Safety (30 points) Score - _____	Proper PPE, equipment operated safely, all members are careful	Proper PPE, equipment operated safely, not always careful	Proper PPE, equipment not operated correctly or treated well	Proper PPE not worn the entire time, equipment mistreated
Accuracy (25 points) Score - _____	Parts measured & cut correctly, holes are centered, forklift cutouts in properly, print followed	Most parts are cut correctly, holes close to center, all parts placed within 1/8"	One or more parts cut incorrectly, holes are not centered, forklift cutouts in wrong	One or more parts cut incorrectly, several parts not installed according to the print
Final Product (50 points) Score - _____	Curb form is well constructed, edges flush, proper amount of fasteners used, great quality	Form is built well, edges mostly flush, fasteners used well, good quality displayed	Form constructed and will work, some splitting of wood, not all edges line up, etc.	Form is not completely finished, some problems or splitting, other
Report/Math (50 points) Score - _____	Calculations are accurate, report details ways to involve chapter members, well written	Calculations are mostly correct, report includes ways to involve chapter members, well written	Some inaccuracies present, limited ways to involve members, some grammar/spelling errors	Many incorrect calculations, report is incomplete or missing, many errors

Team Name: _____

Final Team Score: _____