

# Construction Timeline

## Using Excel for Project Planning

**Subject Area:** Computer Applications    **Grade Levels:** 9

**Date:** Aug. 2009

### Lesson Overview

The student will create a timeline for building a house using the “Timetable” handout as a guide. Students will see how a change in one place of the timetable will create changes in other places of the timetable.

### Materials Included in this Lesson

- Hand-out

### Other Materials for this Lesson

- PC
- MS Excel
- Example spreadsheet (teacher only)

### Skills the Student will Learn

Format cells as dates  
Formulas to change dates  
Project end date based on start date  
Learn industry standard terms

### Student Deliverables

Spreadsheet with all titles, dates and formulas.

## Length of Lesson: 1 Day

### Activity Day One

Create headings in cells A1 & B1 titled Activity and Start Date respectively. Center the headings. Format column B as ‘short’ date. Put start date in cell B2.(example: 6/01/2009) Use a simple formula to advance the dates down the column. (example: =B4+2) Note, the first three steps can all be done on the same day, but still use a formula (=B2) to continue the date.

Once the student has completed the spreadsheet have them change the start date to the following Monday after the original start date.

## Enrichment Suggestions

Use a calendar to eliminate any holidays and weekends from the project list. If a task takes five business days and it begins on a Thursday then it would be completed on Wednesday NOT Monday. Choose a step to change the required time for the process and discuss the outcome. (increase/decrease the required time to complete the house)

Create a separate spreadsheet to calculate the time and material required for installing a wood floor in a 10 by 12 foot room. The material size is in 4 foot lengths by 3.5 inches wide and the student needs at least 30% more product to complete the job. The product comes in 20 piece cases. How many cases would they need to order (full cases only)? What date will the product be delivered in order to be used by start date (needs to be stored in the room for 72 hours)? Give students the example without formulas and numbers as a guide to this part of the project.

## Student Resources

Student will not need any additional resources.

## State Standards Met

California Career Technical Education Model Curriculum Standards  
Grades Seven Through Twelve

5.2 Understand the systematic problem-solving models that incorporate input, process, outcome, and feedback components.

7.2 Understand the importance of accountability and responsibility in fulfilling personal, community, and workplace roles.

7.4 Understand that individual actions can affect the larger community.

9.3 Understand how to organize and structure work individually and in teams for effective performance and the attainment of goals.

10.3 Understand that quality control is a planned process to ensure that a product, service, or system meets established criteria.

## Lesson Plan Relevance To Externship

Allows students to discover the timing issues in the construction trade and how each part of the process is dependent on other parts being completed on time. Helps student problem solve by creating a tool that can be used to determine a projected end date based on start date and many variables.

## Rubric for the Construction Timeline Project

<b>Student Deliverables</b>	1 Fails to meet Expectations	2 Approaches Expectations	3 Meets Expectations	4 Exceeds Expectations
Spreadsheet	Spreadsheet is not completed in allotted time.	Column A is completed and column B contains dates but NOT formulas	Column A is completed and column B mostly contains formulas	All cells in the 'Start Date' column are formulas

Activity		Start Date
Staking the lot and house: 2 hours	0	6/1/09
Clearing and excavation: 2 days	0	6/1/09
Ordering utilities, temporary electric service, and a portable toilet: 1 hour	0	
Footings. First inspection must be made before pouring: 1 day	2	
Foundation and soil treatment, then foundation survey: 5 days	1	
Rough-ins for plumbing, if on a slab, and inspection: 3 days	5	
Slabs, basement, and garage: 2 days	3	
Framing and drying-in: 21 days	2	
Exterior siding, trim, veneers: 10 days	21	
Chimneys and roofing: 5 days	10	
Rough-ins: 8 days	5	
Insulation: 3 days	8	
Hardwood flooring and underlayment: 4 days	3	
Drywall: 10 days	4	
Priming walls and "pointing up": 2 days	10	
Interior trim and cabinets: 8 days	2	
Painting: 12 days	8	
Other trims, such as Formica, ceramic tile, vinyl floors: 4 day	12	
Trimming out and finishing plumbing, mechanical, and electrical and hooking up utilities: 8 days	4	
Cleanup: 2 days	8	
Carpet and/or hardwood floor finish: 4 days	2	
Driveway (if concrete, can be poured anytime after drywall): 3 days	4	
Landscaping: 2 days	3	
Final inspections, surveys, and closing of construction loan and interim loan: 3 days	2	
Start moving in	3	

<b>Room Size</b> <b>(sq ft)</b>	<b>Length</b> <b>(feet)</b>	<b>Width</b> <b>(feet)</b>
120	12	10
<b>(sq inches)</b>		
17280		

<b>Product size</b> <b>(sq inches)</b>	<b>Length</b> <b>(inches)</b>	<b>Width</b> <b>(inches)</b>
168.00	48	3.5

<b>20 items</b> <b>per case</b> <b>(sq inches)</b>	<b>Room size</b> <b>divided by</b> <b>case</b>	<b>Additional</b> <b>30%</b>	<b>Total cases</b> <b>needed</b>	<b>Total cases</b> <b>ordered</b>
3360	5.14	1.54	6.69	7

**Delivery date:** 9/8/09

Flooring need to be stored in the same room it is to be installed in for 72 hours.  
If work starts on 9/12 am then it would need to be delivered by the 8th.

# Timetable for building a house\*

Staking the lot and house: 2 hours

Clearing and excavation: 2 days

Ordering utilities, temporary electric service, and a portable toilet: 1 hour

Footings. First inspection must be made before pouring: 1 day

Foundation and soil treatment, then foundation survey: 5 days

Rough-ins for plumbing, if on a slab, and inspection: 3 days

Slabs, basement, and garage: 2 days

Framing and drying-in: 21 days

Exterior siding, trim, veneers: 10 days

Chimneys and roofing: 5 days

Rough-ins can be done while steps 9 and 10 are in progress: 8 days

Insulation: 3 days

Hardwood flooring and underlayment: 4 days

Drywall: 10 days

Priming walls and "pointing up": 2 days

Interior trim and cabinets: 8 days

Painting: 12 days

Other trims, such as Formica, ceramic tile, vinyl floors: 4 day

Trimming out and finishing plumbing, mechanical, and electrical and hooking up utilities: 8 days

Cleanup: 2 days

Carpet and/or hardwood floor finish: 4 days

Driveway (if concrete, can be poured anytime after drywall): 3 days

Landscaping: 2 days

Final inspections, surveys, and closing of construction loan and interim loan: 3 days

\*<http://www.byoh.com/stepbystep.htm>

Activity	Days	Late	Start Date
Staking the lot and house: 2 hours	0		6/8/10
Ordering utilities, temporary electric service, and a portable toilet: 1 hour	0		6/8/10
Clearing and excavation: 2 days	2		6/8/10
Footings. First inspection must be made before pouring: 1 day	1		6/10/10
Foundation and soil treatment, then foundation survey: 5 days	5		6/11/10
Rough-ins for plumbing, if on a slab, and inspection: 3 days	3		6/16/10
Slabs, basement, and garage: 2 days	2		6/19/10
Framing and drying-in: 21 days	21		6/21/10
Exterior siding, trim, veneers: 10 days	10	3	7/12/10
Chimneys and roofing: 5 days	5		7/25/10
Rough-ins: 8 days	8		7/30/10
Insulation: 3 days	3		8/7/10
Hardwood flooring and underlayment: 4 days	4		8/10/10
Drywall: 10 days	10		8/14/10
Priming walls and "pointing up": 2 days	2	2	8/24/10
Interior trim and cabinets: 8 days	8		8/28/10
Painting: 12 days	12		9/5/10
Other trims, such as Formica, ceramic tile, vinyl floors: 4 day	4		9/17/10
Trimming out and finishing plumbing, mechanical, and electrical and hooking up utilities: 8 days	8		9/21/10
Cleanup: 2 days	2		9/29/10
Carpet and/or hardwood floor finish: 4 days	4		10/1/10
Driveway (if concrete, can be poured anytime after drywall): 3 days	3		10/5/10
Landscaping: 2 days	2	1	10/8/10
Final inspections, surveys, and closing of construction loan and interim loan: 3 days	3		10/11/10
Start moving in			10/14/10

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Start moving in