NUMBERS: Zero to Infinity
Sample Syllabus

Week 1: Estimation, Day 1		
Warm – up Worksheet	Write name, age, school and city and an interesting fact on an index card	
9:00-10:20	30 min	Assembly / Return to Classroom
	25 min	Write names on books, items, Introductions: write on index card – name, age, school, something interesting. Introduce selves. Collect cards, draw names – raise your hand if that person is your neighbor
	5 min	Time Estimation
	10 min	Honor Code
	10 min	Break
10:20 – 12:00	5 min	Talk about Estimation (intelligent guessing), when you use exact/ approximate
	25 min	Take walking tour of campus: get ideas for project
	15 min	Read Betcha;
	10 min	In groups, brainstorm: what would they like to estimate that is too big to count
	25 min	Estimate small things in classroom, measure body parts, use body parts to make closer estimates
1:00 – 2:30	55 min	Introduce *Gulliver's Travels*. Read Introduction and Chapter 1
	5 min	Break
	30 min	Pre-Assessment
3:45 – 4:00		Review HW : 1. Reading Log 2. Numbers Worksheet 3. Finish Gulliver Pictures They can start any of these or do more work on the assessment.

Week 1: Estimation, Day 2		
Warm – up Worksheet		
9:00-10:15	5 min	Time Estimation Warm-up
	20 min	Warm-up problem; collect HW/ Worksheets/ attendance / activities
	30 min	Talk about strategies for estimating numbers too big to count. In their estimation project groups, help them come up with a strategy and write a list of all the information they will need to collect tomorrow. Make sure groups decide what smaller pieces of information are necessary to get a good estimate.
	15 min	Get back together as a class and go over the 4 different estimation projects and the strategy that will be used to estimate each. Let each group present. Discuss if it seems like each will work and if we have missed any details
10:15 – 12:00	10 min	Break
	45 min	Begin estimation packet (estimation sums and differences). Coloring sheet ready for those who finish early.
	5 min	Pass out the apples and paper towels. Each student must estimate the amount of their apple they think is edible.
	30 min	Students each weigh their apples and paper towels and record their weight Students eat their apple and save all the inedible parts on a paper towel. They weigh the uneaten parts and paper towel again and record the weight. The students complete the calculations on the worksheet individually.
12:15 – 1:45	20 min	Finish up apple estimation sheets
	30 min	Talk about how the first night's reading was: too long, too short, too easy, to hard…Summarize story. Guessed meaning of hogshead using information in story.
	15 min	Drew sketch of temple that Gulliver is staying in. Estimated height of door and height of temple. Used info from story (door = 4 ft) to find conversion factor and determine how tall the building would be in the story.
	25 min	At the grocery store (mental math) – We will show a list of the items in your basket and their prices. Try to estimate the total bill. Give example. Try. Have student who comes closest explain strategy. Do again with new items.
1:45 – 2:30		Review HW : 1. Reading Log 2. Estimeasure Worksheet 2

Week 1: Estimation, Day 3		
Warm – up Worksheet		
9:00-11:00	5 min 20 min 5 min 60 min 30 min	Time Estimation Warm-up Warm-up problem; collect HW/ Worksheets/ attendance / activities Talk about the GREAT ideas from the day before Groups carry out projects. Do calculations. (2 groups with an instructor. One group works on taking measurements, the other group works on story-problem worksheet) Groups prepare posters
11:00 – 12:00	10 min 20 min 30 min	Break Talk about the measuring lines on a ruler (inch) Estimeasure worksheets. If they finish they can continue on frog story work sheets, estimation packets (up to products), mazes and coloring
1:00-2:30	50 min 10 min 30 min	Continue Estimeasure Worksheets Summarize what happened in the previous night's reading Read pages 23-25 together. Brainstorm what the different objects are.
1:45 – 2:30		Review HW : 1. Reading Log 2. Estimeasure Worksheet 8

Week 1: Estimation, Day 4		
Warm – up Worksheet		
9:00-10:30	10 min 15 min 20 min 30 min 15 min	Time Estimation Warm-up Warm-up problem; collect HW/ Worksheets/ attendance / activities Frog worksheets – get in groups to compare answers, then discuss as a class Groups finish posters Break
10:30 – 12:00	20 min 20 min 10 min 50 min	FIRE DRILL BREAK Estimation Project Presentations Summarize last night's reading Begin project: "Lilliputian-sized model of me" 1. First, find conversion factor. 2. Have the class determine a list of body parts to measure. Convert them into Lilliputian sizes 3. Start drawing
1:00 – 2:30	20 min 40 min 10 min 20 min	Continue "Lilliputian-sized model of me" (work on converting/ estimating from decimals to fractions) Introduce M&M estimation project – have students get in groups and fill out their estimates, each completing the sheet themselves by agreeing. When their estimations are complete, they can get m&ms, record data. Make bar graph. They also put results into a table on board. Summarize last night's reading Project: Make Lilliputian-sized model of yourself! 1. First, find conversion factor. 2. Have the class determine a list of body parts to measure. Convert them into Lilliputian sizes 3. Start drawing Grid estimation with DP Estimating on the computer http://www.shodor.org/interactivate/elementary/estimator.html
3:45 – 4:00	Review HW : 1. Reading Log 2. Finish estimation packet up to quotients	

Week 1: Estimation, Day 5		
Warm – up Worksheet		
9:00-10:30	10 min	Time Estimation Warm-up (with partners)
	10 min	Warm-up problem; collect HW/ Worksheets/ attendance / activities
	50 min	Do volume estimation activity – Styrofoam peanuts – how can they be estimated, then counted – discuss strategy of using a cup: finding out how many are in a cup and counting the number of cups. Count the number in 1 cup and measure how many cups there are total. Have aid tally cups on board to keep track. Multiply the number in on cup by the number of cups to estimate the total. Give each student a few cups on their desk to count. Add up the total number and compare the estimate
	40 min	Work on Estimation Packets (through quotients)
	10 min	Break
10:50 – 12:00	30 min	Estimation Packets
	20 min	Notebook Organization
	20 min	Really big numbers (look at hand out – read together and write your own really big number
1:00 – 2:30	5 min	Summarize last night's reading
	25 min	Work on Lilliputian sized model of students
	50 min	Watch the first hour of *Gulliver's Travels* the movie. (We actually talked about Lilliputian units – drurrs and Blustrugs, since the movie player wasn't able to be connected.
	10 min	Talk about the movie – like they imagined, the same as the story, any differences, closest parts, any questions, etc?
3:45 – 4:00		Review HW : 1. Reading Log 2. Estimation packet up to products and quotients page

Week 2: Measuring, Day 6		
Warm – up Worksheet		
9:00-10:30	20 min 10 min 20 min 25 min 15 min	Lengths scramble - the students in the class each receive a card with a different length on it. They should put themselves in order from least to greatest Warm up Worksheet/ Collect HW Quotient Worksheet Game Quotient Worksheet Page 2 Break
10:30 – 12:00	10 min 30 min 30 min 20 min	Talk about the difference between measuring and estimating. Talk about the two measuring systems: US standard and metric. Unit scrambles: put the units in categories (metric length, metric volume, metric weight; U.S. standard length, U.S. standard volume, U.S. standard weight) Read *Millions to Measure* Continue Units scramble Measuring worksheets 1. appropriate length 2. conversions (metric lengths) Use meter sticks – in pairs
1:00 – 2:30	20 min 20 min 10 min 5 min 30 min	Continue units scramble Conversions (Metric Lengths) Summarize what happened in Gulliver's Travels Break Gulliver's Travels Movie
3:45 – 4:00		Review HW : 1.Finish page 11 (Quotient Estimation) of the Packet 2. Metric Conversion worksheet 3. Gulliver's Travel Reading Log

Week 2: Measuring, Day 7		
Warm – up Worksheet		
9:00-10:30	15 min 15 min 50 min 10 min	Metric Length/Unit scramble (the students in the class each receive a card with a different length on it. They should put themselves in order from least to greatest) Warm up Worksheet/ Collect HW Metric Hunt (pairs): Find something in the classroom close to 1 cm, 5 cm 1 dm, 3 dm, 70 cm, 1m. 2 m. Measure it and give its exact length Break
10:30 – 12:00	20 min 40 min 20 min	Review metric conversion from yesterday Crossword (metric conversion) – can have sudoku if they finish early Work on Lilliputian mural (Lilliputian sized model of me, other object to put in mural)
Homework		Homework: 1. Units match 2. Centimeter measure

Week 2: Measuring, Day 8		
Warm – up Worksheet		
9:00-10:30	15 min 25 min 35 min 15 min	Units match Warm up Worksheet/ Collect HW Review metric conversions (with DP – explanation, problems on the board and bonus problems) Break
10:30 – 12:30	60 min 30 min 10 min 30 min	Area measuring challenge (from the Estimeasure book – when the students finish, they should get in groups and compare answers, redoing work when there is a discrepancy) Read *The Magic School Bus: Lost in the Solar System* Pass out worksheet on planet sizes and distances. Determine conversion factor for scale. Convert all planets to sizes for scale model. (1000 km = 1 cm) Explain why we will not be creating the sun to scale Have students choose a planet – cut out a circle that size in diameter and color in (See pictures at http://www.solarviews.com/eng/homepage.htm), label Using the conversion factor above, Mercury would be 57,900 cm = 579 m from the sun. Find different conversion factor for these distances from the sun. Tell them we will use the planets to make a model on Friday.
12:00 – 1:30	20 min 25 min 5 min 40 min	Finish reading *The Magic School Bus: Lost in the Solar System* Pass out worksheet on planet sizes and distances. Determine conversion factor for scale. Convert all planets to sizes for scale model. (1000 km = 1 cm) Explain why we will not be creating the sun to scale Break Activity with other 2 classes (Each student gets a card, Ex. 3 red triangles, and must join other students with similar characteristic (ex red); When in groups they are given a challenge activity)
3:45 – 4:00		Review HW : 1.Conversion Worksheet (US Standard – Metric) 2. Gulliver's Travel Reading Log 3. If not finished, work on area measurement, Lilliputian model of self

Week 2: Measuring, Day 9		
Warm – up Worksheet		
9:00-10:45	10 min 25 min 40 min 10 min 15 min 10 min	Unit scramble Warm up Worksheet/ Collect HW and correct together Make a milliliter (Draw nets to make 1 sq cm cube, 1000 sq cm cube, cut them out and tape them to form 1 milliliter, 1 liter) Make chart for volume (microliter, milliliter, liter) Conversion problems with small units – DP Break
10:45 – 12:00	30 min 45 min	Introduce guest lecturer to class. Have students introduce themselves, tell him about what they have been learning. Divide class into 3 groups of 4. One group will work on measuring microliters with the guest lecturer. The other two groups will make scale models of the cell – they will first find a conversion factor and then make the conversions. Then they will draw them, color them and cut them out.
1:00 – 2:30	40 min 20 min 30 min	Finish scale model of the cell / measuring projects Have students summarize, answer discussion questions. Mural
3:45 – 4:00		Review HW : 1.Conversion Worksheet blustruggs to feet and back 2. Gulliver's Travel Reading Log

Week 2: Measuring, Day 10		
Warm – up Worksheet		
9:00-10:20	10 min 10 min 10 min 30 min 15 min	Unit scramble Warm up Worksheet/ Collect HW and correct together Write thank you letters/ draw pictures to give to scientist Continue cell models from yesterday – hang up in classroom Break (AT 10 am!)
10:20 – 12:00	30 min 5 min 45 min 20 min	Continue cell models Solar System Models – recap Wednesday's class Assign planets to pairs of students. Measure and crate planets Clean-up / Notebook organization
1:00 – 2:30	30 min 40 min 20 min	Talk about scale for solar system model (that we can't use the same distance as for the planets) Find second conversion factor. Calculate distances for scale model Watch the second hour of *Gulliver's Travels* the movie. Lilliputian Mural
3:45 – 4:00		Review HW : 1. Volume/ length/ weight (Collect 10 items – write down their volume, length or width in Standard and Metric units) 2. Gulliver's Travel Reading Log 3. Classroom object for mural

Week 3: Numbers around the world: Day 11		
9:00-10:45	10 min	Count to 10 in Hungarian
	10 min	Collect HW and discuss
	30 min	Divisor Challenge
	40 min	Solar system Model – cut string to represent distance from sun; take the planets and set them up outside.
	15 min	Break
10:45 – 12:00	10 min	Talk about what hunter/gatherer societies needed to count
	40 min	Read *History of Counting* (pg 7-24) together
	15 min	Do Sumerian numbers problems on the board
	10 min	Sumerian decimal number problem worksheet
1:00 – 2:30	60 min	Lilliputian murals
	10 min	Talk about what students know about currency – have they traveled? What money do they use indifferent countries? Etc. Currency – web scavenger hunt
	20 min	Currency Web-Scavenger Hunt: http://aes.iupui.edu/rwise/notedir/mappage.html
3:45 – 4:00		Discuss HW 1. Volume/ length/ weight (Collect 10 items – write down their volume, length or width in Standard and Metric units) – Have find more objects, focusing on weight and volume 2. Write how to say the numbers 1- 10 in a different language on a sheet of construction paper.

Week 3: Numbers around the world: Day 12		
9:00-10:15	10 min 10 min 30 min 10 min 15 min	Count to 10 in Hungarian/ Hindi Collect HW and discuss Currency webquest – finish lists; have them choose one bill and compare it to the dollar Review Sumerian numbers – have students write a number between 1 and 1199 on a piece of paper – have them cut out numerals. Draw numbers and have them arrange the numerals to be the right number Break
10:15 – 12:00	20 min 40 min 30 min	More Sumerian numbers Mayan numbers have them complete the worksheet Lilliputian mural
1:00 –2:30	30 min 15 min 30 min 15 min	Finish Lilliputian mural Converting from Dollars to forints Sudoku puzzles? Gulliver's Travels Movie Explain HW
3:45 – 2:30		No check-in today!
Homework		1. Design an outfit, think of the US price for each item; find the price in Hungarian forints 2. Divisor worksheet

Week 3: Numbers around the world: Day 13		
9:00-10:30	20 min 5 min 20 min 30 min 15 min	Count to 10 in different languages – two groups of student led presentations (thai and mandarin) Collect Homework Introduce how to write steps for a problem using addition. Warm-up: Subtraction (with borrowing) worksheet; have students describe steps used in borrowing problems Introduce "algorithm" for Vietnamese subtraction; students work on problem worksheet. Break
10:30 – 12:00	15 min 10 min 20 min 45min 5 min	Pass back and discuss homework Look at foreign money Explain exchange rate table, how to convert hamburger price into USD. How much does a hamburger cost? Worksheet (foreign -> $) Students who are finished early may do Sudoku puzzles
1:00 – 2:30	15 min 60 min 15 min	Explain menu project – Students collect data for menu project Gulliver's Travels Movie
Homework		Make 3 menu pages

Week 3: Numbers around the world: Day 14		
9:00-10:45	25 min 5 min 40 min 20 min 15 min	Count to 10 in different languages – two groups of student led presentations (French and Spanish) Collect HW Evaluations Lilliputian Projects Break
10:45 – 12:00	30 min 15 min 30 min	Lilliputian Projects Foreign Market Improv – students should receive slips of paper explaining their roles. Read Count on Your Fingers African Style
1:00 – 2:30	20 min 45 min 25 min	International Menus Gulliver's Travels Movie Talk about presentation tomorrow
3:45 – 4:00		Discuss HW 1. Lilliputian Mural – any additional items 2. International Menus – finish covers and add color to pages 3. Maze

Week 3: Numbers around the world: Day 15		
9:00-10:45	20 min	Count to 10 in different languages (Cantonese, Korean)
	30 min	Practice Presentation and clean classroom
	40 min	Fourian Mathematics (Base four)
	15 min	Break
10:30 – 11:30	20 min	Fourian mathematics continued
	10 min	Lilliputian Murals
	30 min	Finish Gulliver's Travels Movie
1:00 – 2:30	30 min	Graduation Ceremony
	60 min	Time with parents / Parent Conferences