

TinkerPlots

Dynamic Data Exploration

Students aged 9—13 use TinkerPlots Dynamic Data Exploration to create colourful visual representations of data – making sense out of numbers and recognising patterns as they unfold.

TinkerPlots is specifically designed to get students excited about what they can learn from data. Featuring an engaging, friendly interface, TinkerPlots presents a dynamic learning environment in which students create colourful visual representations to help them make sense out of real data and recognise patterns as they unfold. It's a must for inquiry-based maths and science classrooms in which students collect and analyse data to explore their own hypotheses.

TinkerPlots empowers your students to:

Collect data. Download data from the Internet, copy it from a spreadsheet, or enter it by hand.

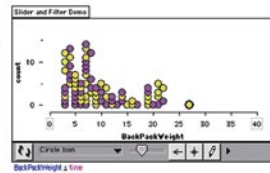
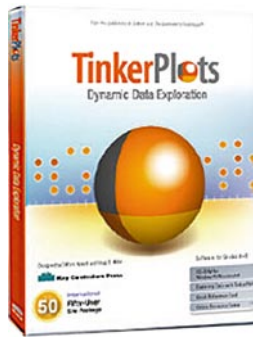
Design plots. Organise data by ordering, stacking, and separating data icons to create pie charts, histograms, scatter plots, or graphs of their own creation. Colour the icons by another attribute to show even more patterns.

Dynamically explore data sets. Highlight values in one graph to show them highlighted in all graphs. Drag icons to modify the data. Drag bins to change their width. When your students change something in TinkerPlots, everything linked to what they change updates dynamically!

Investigate cool data. TinkerPlots comes with about 40 data sets covering everything from the weight of students' backpacks to the orbits of the planets. Each data set includes a question to get students started.

Produce Coursework. Students use TinkerPlots to produce reports that include their graphs, along with text that explains their findings and even photos they take or locate on the Web.

Share data. Teachers and students from all around the world can share data on the TinkerPlots Resource Centre.

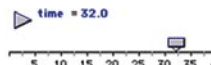


Seeing Is Believing — and Learning!
Presenting the First Dynamic Data Exploration Software for Ages 9-13

Clifford Konold and Craig D. Miller
University of Massachusetts



1. Add cases to a plot according to their value for an attribute. If the attribute is time-based, this will "replay" the event over time.

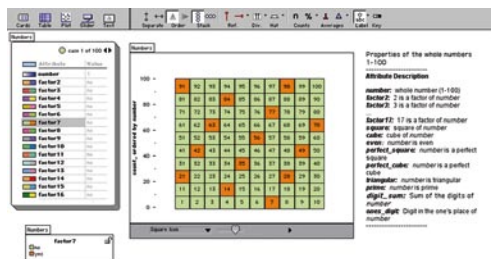


Animate Plots with Sliders and Filters

User a slider to observe how cases are added to the graph. The slider controls the plot filter. The filter is defined by a formula which you can see below the plot.

What makes TinkerPlots different from any other "graphing" or spreadsheet program is that, with TinkerPlots, students actually design their own graphs. This gives them a sense of being in control of what they produce.

Like a word-processing or spreadsheet program, TinkerPlots is a general tool that teachers and students alike will find useful across a large range of subject matter. It comes with a variety of ready-to-analyse data collections, drawn from topics including mathematics, science, history, geography, health studies, sports, and more.



The screenshot shows the TinkerPlots software interface. On the left, a table lists nutritional information for 77 breakfast cereals. The table has columns for Attribute, Value, and Unit. The data includes Name (100% Bran), Manufacturer (Nabisco), Type (cold), Shelf (top), Calories (70), Cups (0.33), Weight (1), Protein (4), Fat (1), Sodium (130), Fiber (10), Carbs (5), Sugars (6), Potassium (280), Vitamins (25), and Rating (68).

On the right, a dot plot shows the distribution of calories per serving for cereals on three shelves: top, middle, and bottom. The x-axis represents calories per serving, ranging from 40-59 to 160-179. The y-axis represents the shelf. A legend identifies the manufacturers: American HFP, General Mills, Kellogg's, Nabisco, Post, Quaker Oats, and Ralston Purina. A blue circle highlights a cluster of data points in the 100-119 calorie range on the top shelf.

Below the table and plot, there are sections for 'Nutritional information on 77 breakfast cereals' and 'Questions'. The questions are:

1. What differences do you see in the nutritional values of cereals on different shelves?
2. If you wanted to market a cereal to very young children, which shelf would you want to put it on? Does this appear to be what is occurring based on these data?

The software version is noted as 'TinkerPlots™: a data analysis construction set, beta test version 0.91'.

[Above:] How many calories do most cereals have? Use the **Drawing** tool and case counts to make just one plot that might answer this question.

Support for Teachers

In addition to extensive support online at the TinkerPlots Resource Centre, TinkerPlots comes with these support and learning materials:

Exploring Data With TinkerPlots provides you with everything you need to get started — from installation instructions to advice on teaching with TinkerPlots. Seven activities illustrate TinkerPlots' many applications and are accompanied by detailed Activity Notes written for the teacher.

The CD-ROM, in addition to including the program files for Windows and Macintosh platforms, features an extensive help system, five QuickTime movies providing basic instruction, more than 40 data sets, demonstration files showing TinkerPlots' capabilities, and PDFs of all printed materials, including the help system.

A Quick Reference Card provides students with easy-to-read basics on using TinkerPlots.

"In my multi-age classroom with a mix of regular education, special education, and ESL students, all have responded favorably to TinkerPlots. They have a much stronger understanding of the data they collect and quickly get to where they can formulate questions and create graphs that answer their questions. They enjoy the colours and animation and frequently choose to use TinkerPlots in their free time."

— Teri Hedges, Huegel Elementary School

Winner! Silver Honour - Parents' Choice Foundation

"It is as massive as it is impressive.

TinkerPlots is graphically appealing. It can animate changes in the icons plotted on its graphs. But the icons used for the graphs don't just change. They morph from one icon type to another, e.g. from dots to bars. The extremely friendly and intuitive interface allows the user to play with the data plotted in an infinite variety of formats. We are limited only by our imaginations. That's a fairly impressive claim to make about a graphing program.

Sample data sets included on the CD cover a wide variety of topics and include questions that lead to a greater depth of understanding of the data being presented. These sample graphs are easily and creatively adjusted to facilitate understanding and to generate new ideas for original research."

Carolyn Gershovich, Parent's Choice Foundation

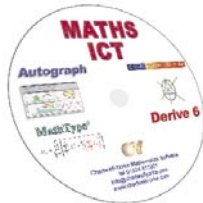
System Requirements: Windows 98, XP, Mac OS X 10.1 or later, 64MB RAM (Win) 128MB RAM (Mac), 100MB disk space. **Licences and Prices:** £49 + vat, 10-user £159 + vat, 50-user £359 + vat, Site £475 + vat.



How to Order

Orders and enquiries welcomed at the address below either by phone, email, post, fax, or online. Despatch normally same day! Delivery is FREE within the UK. Overseas delivery quotes by post of courier speedily available.

Please obtain an official Purchase Order number if your institution requires you to do so. We are happy to supply educational institutions with goods together with a 30-day invoice. Personal and overseas customers should send payment with order. Cheques should be payable to "Chartwell-Yorke Ltd." Visa, Mastercard, Solo, Maestro or American Express cards are welcomed.



**Free Trial
CD-ROM
available
to teachers**



Derive 6

Developing Number 2

Fathom™

FX MathPack



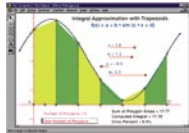
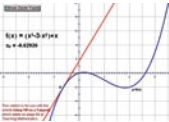
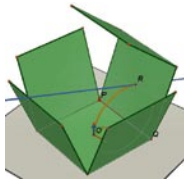
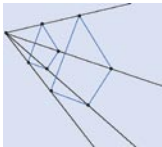
INTERACTIVE MATHEMATICS

MathType⁵

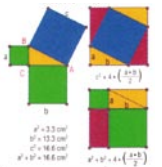
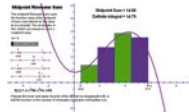
Mathematical Problem Solving

TinkerPlots

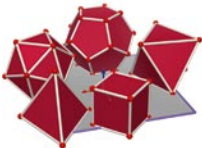
Teach A-Level Maths



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



$$\sigma_x = \sqrt{\frac{1}{n} \left\{ \sum_{i=1}^n X_i^2 - \frac{1}{n} \left(\sum_{i=1}^n X_i \right)^2 \right\}}$$



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