

CHAOS

A Tool Kit of Dynamics Activities

Fractals, chaos, and dynamics represent a popular and exciting field of mathematics developed in recent decades. Robert Devaney, Alice Foster, and Jonathan Choate have created a collection of tool kits of dynamics activities in response to the demand that this fascinating field become accessible to school-age students. Not only do students and teachers find the study of chaos and fractals to be intriguing, but they also find a strong alignment with topics already present in contemporary mathematics curricula.

The availability of technology that can perform calculations quickly has allowed for much of the development of these mathematical topics. In most cases the activities are not dependent on any particular technology, in recognition of the varied access different classrooms have to different types of technology. However, technology tips indicate where graphing calculators, spreadsheets, computer graphic applications, or the World Wide Web can enhance a particular lesson. In addition, the authors support the books through a Web site that includes interactive Java™-applets for students.

Each lesson contains the following features:

Teacher Notes that give detailed advice on how to plan for and organize the lesson.

Explanation pages for the student and teacher that clearly explain the mathematical content of the lesson.

Investigations in blackline-master format that lead students through a guided discovery of the content of the lesson.

Further Exploration problems that provide students with more exposure to the ideas of the lesson.

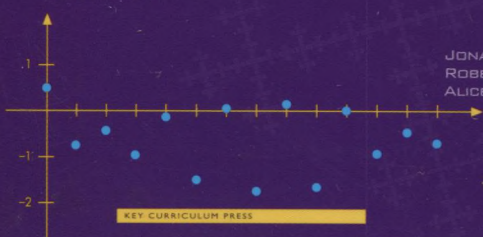
Chaos explains how very small changes in the initial configuration of a system model may lead to great discrepancies over time. Called the “butterfly effect,” this phenomenon accounts for our inability to make accurate predictions in the weather, for example, despite enormous computing power and loads of data. *Chaos* reviews linear iteration and explains both linear and nonlinear iteration with fixed points, cycles, and orbits through both graphical iteration and orbit diagrams.

The complete Tool Kit of Dynamics Activities collection includes the following titles:

ITERATION

A Tool Kit of Dynamics Activities

JONATHAN CHOATE
ROBERT L. DEVANEY
ALICE FOSTER



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FRACTALS

A Tool Kit of Dynamics Activities

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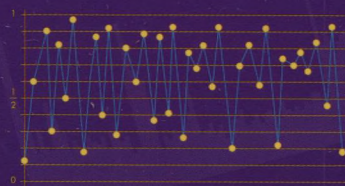


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CHAOS

A Tool Kit of Dynamics Activities

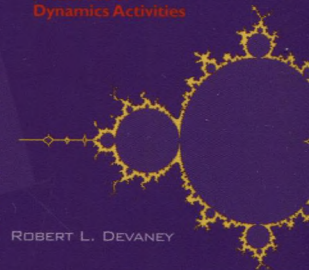
ROBERT L. DEVANEY
JONATHAN CHOATE



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THE MANDELBROT AND JULIA SETS

A Tool Kit of
Dynamics Activities



ROBERT L. DEVANEY


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BLACKLINE ACTIVITY MASTERS

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







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

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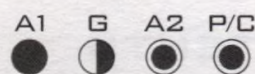
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Curriculum Correlation Key

-  Small portion of lesson is relevant to indicated stage of curriculum.
-  About half of lesson is relevant.
-  Entire lesson is relevant.
-  Lesson is particularly relevant and could replace a traditional lesson.

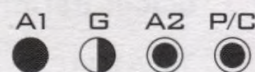
- MS Middle School
- A1 Algebra
- G Geometry
- A2 Algebra 2
- P/C Precalculus or Calculus

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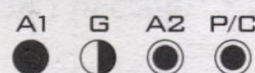
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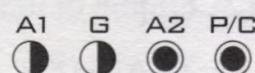
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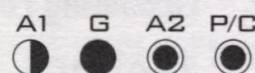
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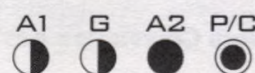
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