



FREEFORM™

FEEL THE DIFFERENCE

Company:

Hasbro

Product:

Jurassic Park Junior's Triceratops

Summary:

The FreeForm system took Hasbro's modeling challenges by the horns, allowing sculptors to work around mechanical data from engineering and within parameters set for packaging.



Sculptor Dave Bilyeu at work

CUSTOMER SUCCESS STORY



The "Triceratops" is one of more than a dozen toys in the Jurassic Park Junior line – a group of simple, friendly dinosaur toys for pre-school aged children. From the concept phase all the way through manufacturing, the project was the result of a collaborative effort among teams at Hasbro and the work of many individuals.

Principal Designer Ed Duncan created 2D sketches and renderings of each dinosaur which were then passed on to various sculptors.

While some sculptors employed traditional clay modeling, sculpting project director Dave Bilyeu used the FreeForm system – a relatively new tool in the Hasbro arsenal – to model three of the dinosaurs, including the triceratops.

"I can make hypothetical iterations that could improve the design. If I don't like them, I just go back. Try that with clay!"

Dave Bilyeu, Sculptor

Hasbro constantly evaluates new technologies and varied approaches to toy design and manufacturing while maintaining an unwavering commitment to quality. It was once thought that computer tools could not possibly match the model quality of sculptors working with physical tools like clay and wax. With Triceratops, FreeForm modeling took the

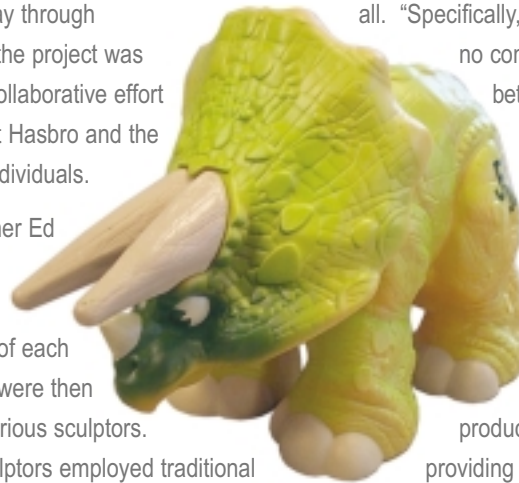
challenge by the horns. During the modeling process, Ed Duncan worked closely with modelers using both approaches. From his perspective, there was really no difference at all. "Specifically," Ed commented, "there were no compromises. The difference between electronic and traditional models is no greater than from one sculptor to another."

Not only did the FreeForm system allow Hasbro to model without sacrificing quality, its digital approach significantly enhanced the product development process by providing more scope for design iteration, facilitating interaction between sculpting and engineering and producing digital data for future reuse.

More Design Iteration

FreeForm modeling provides risk-free experimentation. Dave saved his model at various stages and always had the option to "undo" anything he did not like. He explained, "I can make hypothetical iterations that could improve the design. If I don't like them, I just go back. Try that with clay!"

Dave's work is primarily aesthetic, but the manufacturability of the final design is always in the back of his mind. FreeForm draft angle analysis tools identify potential undercuts early in the design cycle when they can be inexpensively addressed without sacrificing design style. The more confidently Dave can determine the parting line, the less likely are complications later in the tooling process.



Seamless CAD Integration

The triceratops contains an internal mechanism that allows its head to move in and out. This springload device was designed by Hasbro's engineering department using a CAD system and takes up most of the body cavity. Before Dave began creating the 3D model, he had to get this information from engineering. If Dave were to model the toy with clay, the engineering department would supply him with a physical part milled out of ABS plastic, and he would model around it. The FreeForm approach dramatically streamlined interaction with engineering – they just sent Dave their CAD file. He then imported the data directly into the FreeForm system as a buck. With both departments working in the digital world, changes are easily accommodated. Eventually, the model will be broken down into its articulated parts for manufacturing. The traditionally arduous process of separating these pieces is much simpler with the FreeForm system, which scales parts with the press of a button to accommodate different material shrinkage.

Flexibility – Today and Tomorrow

While the engineering and design teams are working on the toy itself, the Hasbro marketing team is busy developing packaging that serves to both display and protect the toy inside. Changes to the triceratops at any stage could mean a less than perfect fit. When Dave received the final packaging dimensions from marketing, he scaled the model to fill the allotted space while keeping the overall size similar to other toys in the line. And now that the Triceratops data has been digitally archived, Hasbro can fully leverage their Jurassic Park Junior license for future projects based on the original files.

“FreeForm is the first thing I've seen that can model anatomical figures so well.”

*Ed Duncan,
Principal Designer*

Results

Hasbro's use of the FreeForm modeling system for the Triceratops toy was a clear success. More model iteration, streamlined interaction with engineering and flexible data led to Hasbro's decision to leverage FreeForm modeling for two additional members of the Jurassic Park Junior line – Stegosaurus and Iguanodon.



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